

# AMERICAN ARTISAN and Hardware Record

Vol. 81. No. 18.

620 SOUTH MICHIGAN AVENUE, CHICAGO APRIL 30, 1921.

\$2.00 Per Year.



## Pipe and Pipeless

**W**HATEVER your prospective customers' heating requirements may be—if you're a Wise dealer you will successfully fill them with Wise warm air heaters. The line is complete, a size for every need—Pipe or Pipeless—at a price that will appeal to wise buyers—a price that will stimulate business *now* and net you substantial profits.

Wise dealers—men with the broadest experience in selling and installing warm air heaters—continue to hold their Wise agencies year after year. They appreciate the certainty of service and the excep-

tional heating capacity of Wise warm air heaters—even when installed in the largest of homes. The number of Wise Furnaces sold each year steadily increases because of demonstrated efficiency and economy. You too can count on this uncommon satisfaction for your customers and yourself when you install Wise warm air heaters.

We have an interesting booklet, a catalog containing complete data on construction and a dealer selling plan that talks business. Your request brings them—write today.

**WISE FURNACE COMPANY - - AKRON, OHIO**

Published Weekly, Entered as Second-Class Matter June 25, 1885 at the Post Office at Chicago, Illinois, under Act of March 3rd, 1879

ALPHABETICAL INDEX AND CLASSIFIED LIST OF ADVERTISERS, Pages 41 to 43

## We Carry the Stock

A Western House for Western Dealers. Why wait weeks on shipments when we can ship 90 per cent of orders when needed by you.

ASK FOR NEW CATALOG

**FURNACES**

**Nesbit**

ALL CAST

**Weir**

ALL STEEL

**Peerless**

GRAVITY



NESBIT 900 SERIES

**REGISTERS**

**Majestic Duplex**

**Hart & Cooley**

**Rock Island**

**Island City**

**Walworth**

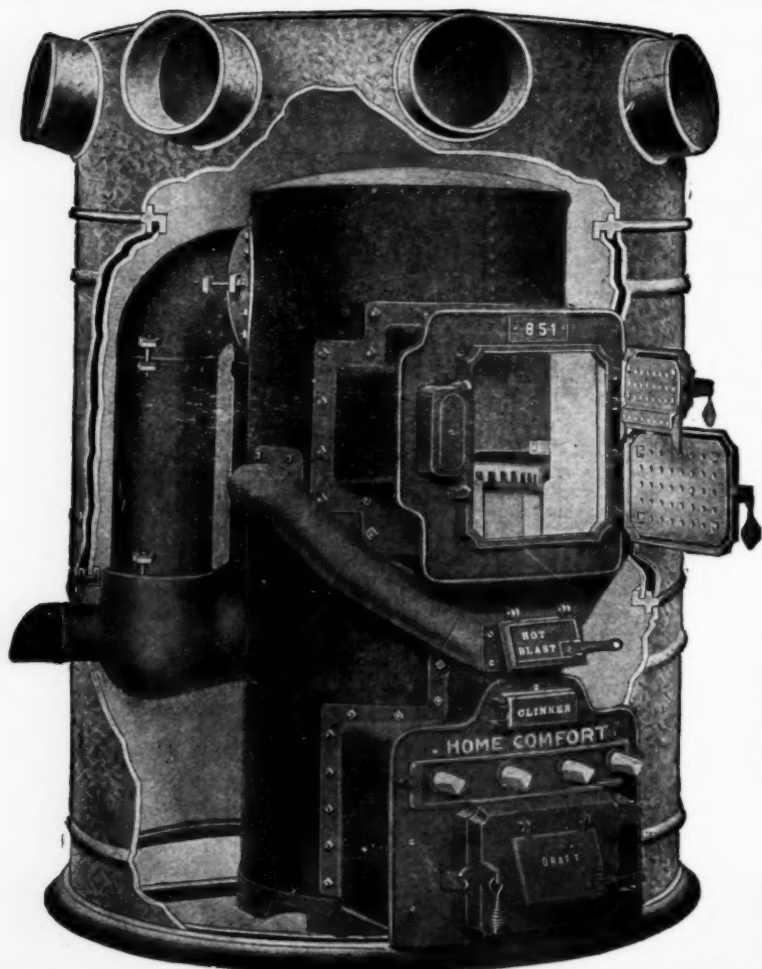
*"THE HOUSE OF SERVICE AND QUALITY"*

*"EVERYTHING GOOD IN FURNACE SUPPLIES"*

**STANDARD FURNACE & SUPPLY CO.**

407-413 So. 10th Street

OMAHA, NEB.



## "HOME COMFORT"

*THERE ARE NO BETTER*

## WARM AIR HEATERS

THE dealer who sells "Home Comfort" warm air heaters sells heaters that are not only exceptionally reliable but distinctively well made.

An examination of the ALL STEEL construction of "Home Comfort" warm air heaters will reveal to you an unusually well designed heating apparatus.

*For many years they have been  
real money makers*

The members of this new company are men who have been connected with the original makers for more than twenty years.

We have a splendid exclusive agency sales plan to offer you.

Let us tell you all about it.

*Write today for our catalog*

**ST. LOUIS HEATING CO.**

2400-06 COLEMAN ST.

ST. LOUIS, MO.

FOUNDED 1880  
BY  
DANIEL STERN  
Thoroughly Covers  
The Hardware, Stove,  
Sheet Metal, and Warm  
Air Heating and Venti-  
lating Interests

# AMERICAN ARTISAN and Hardware Record

Address all communications and  
remittances to  
AMERICAN ARTISAN  
AND  
HARDWARE RECORD  
620 South Michigan Avenue  
Chicago, Illinois

PUBLISHED EVERY SATURDAY BY ESTATE OF DANIEL STERN

TERMS OF SUBSCRIPTION IN THE UNITED STATES AND ITS POSSESSIONS (Invariably in Advance) ONE YEAR POSTAGE PAID \$2.00  
FOREIGN COUNTRIES ONE YEAR POSTAGE PAID \$4.00 CANADA ONE YEAR POSTAGE PAID \$3.00

Entered as Second-Class Matter June 25 1885 at the Post Office at Chicago, Illinois under Act of March 3rd 1879

Vol. 81. No. 18.

CHICAGO, APRIL 30, 1921.

\$2.00 Per Year.

## In Memoriam



**Daniel Stern,**

Founder of  
**American Artisan and Hardware Record**  
May 4, 1920. May 4, 1921.

If you find yourself in a mood of generosity when solicitors come to you asking you to advertise in a church directory, theater program, or society year book, don't deceive yourself into believing that you are paying for publicity in parting with your money for an advertisement in such

### Worthless Publicity

publications. If you are moved to make a free-will offering to any institution, don't disguise it as a business transaction.

Hearken to the words of Secretary Berdahl of the South Dakota Retail Merchants' Association. He says that "thousands of dollars are spent each year on this stuff that is almost if not entirely worthless. Then there is the solicitor begging funds for this, that and the other enterprise. How do you know that they are reliable, and are not pocketing their easily gotten funds?"

"Every town should have a committee or an organization to pass on all this stuff.

"Now is the time to organize. No organization costs money if properly managed. It saves money for you."

♦ ♦ ♦ ♦ ♦

In the majority of cases, as far as hardware dealers are concerned, there is no justification for the complaint that retailers are preventing industrial adjustment by refusing to lower their prices. The fact is that, although there has been some reduction in wholesale prices, the reduction is not retroactive. That is to say, it does not apply to goods in the retailer's store which were bought and paid for at the higher price levels. Often the retailer has a big percentage of his capital locked up in such stock. To sell at a loss would mean a loss of capital and, therefore, a serious crippling of his business.

So far there has been no corresponding reduction in the cost of doing business. Wages of clerks have not been deflated and can not be to any great extent because this is one class of labor that was not inflated very much during the war. Costs of the various items which go into the expense account of the retailer have not as yet undergone any appreciable reduction.

Rents have not come down; taxes, if any-



thing, are higher; interest rates are still high, and, in fact, there has been reduction in little else than the cost of the commodity itself. In such cases the retailer can hardly be blamed for trying to salvage all that he can.

The retailer in a small town who has bought his goods for the season with which to supply the trade of that town, is in a particularly difficult position, for he has to depend upon a fixed clientele to dispose of his goods.

Then, there is the still smaller retailer who works hard during long hours to move his goods, whose percentage of profit is small at best and who is likely to be forced out of business if he can not sell the particular goods he has on hand.

Of course, the best remedy for the trouble is to speed up turnover by intensive advertising, vigorous salesmanship, and constant study of improved methods of merchandising.

◆ ◆ ◆ ◆ ◆

One of the characters in the famous novel by George Eliot, "The Lifted Veil," possesses

**Lifted Veil  
Is Not Very  
Common Gift**

the uncanny faculty of reading the unspoken thoughts of others. The embarrassment, the occasional delights and the numerous disillusionments which attend the exercise of this strange gift are such that no normal person would willingly be endowed with such a power. Once in a while, we hear of persons who are more or less skilled in mind reading.

Fortunately for the peace of communities, the average person is not only unable to read the thoughts of others, but has no way of knowing the nature of any hidden thing. It is true that it might be of considerable advantage to the retailer to have his patrons and prospective customers gifted with the ability to see and appreciate every article of merchandise in the stock of a store, whether hidden under counters or concealed in dust-covered boxes on the back part of the shelves.

Since so very few of us have the faculty of "The Lifted Veil," it becomes necessary for the dealer to let the people know what he has to sell. Goods that remain in out of the way places and which are never brought distinctly to the attention of the public are an expense rather than an asset. The money spent for them is not only idle money bearing no in-

terest but is diminishing money. The reason is that against the sum spent for such neglected commodities must be charged a portion of the overhead costs of the store.

Examine your inventories. Classify according to their slowness the various articles of your stock. Pick out the goods which have received the least attention in your advertising and present them to your clientele through your mailing list, your newspaper advertising, and your display window. Bear in mind that desire to buy can be stimulated only by seeing or hearing or reading of the goods which you have to sell.

◆ ◆ ◆ ◆ ◆

Salesmanship is a form of teaching. The more you teach your patrons and your prospective customers the neces-

**Sell By  
Teaching**

sity or use or advantages of the goods you carry in stock the more likely are they to buy them. At this time of the year the fly menace begins to manifest itself and screen doors and windows are essential to health and comfort. It is the business of the hardware dealer to teach the people the facts about the necessity of screening their homes against fly invasion. For this purpose the dealer himself should study the facts about flies carrying disease. He does not need to put the facts in long medical terms. He can tell them in his sales talks and his advertisements in plain, simple language. Here are some of the expressions which he can use to good effect:

Flies have unspeakably filthy habits. They carry dangerous filth on their feet and in this way they spread disease. The most disgusting thing about the fly is its habit of vomiting. A fly can not eat solid food without first dissolving it by ejecting it along with saliva and other stomach contents. After this disgusting performance the fly then finishes its meal.

These are not pleasant sentences to use, but all the same they are plain facts that ought to be known by everyone. The people who have the facts brought thus bluntly to their attention are more likely to desire protection against such filthy pests and, therefore, to purchase screens from the hardware dealer. Teach the people the disgusting and dangerous features of flies and you will find it easier to get them to screen their homes.



## Random Notes and Sketches

By Sidney Arnold

I got so much pleasure and laughter out of a letter this week from my friend George E. Willsie, vice-president Keith Furnace Company, Des Moines, Iowa, that I can not refrain from sharing it with my readers. Here is what he writes me:

"To one who has been as familiar with the pages of AMERICAN ARTISAN AND HARDWARE RECORD for many years, as I have, the evolutionary advancement in advertising, as a whole, can not fail to be quite noticeable, in contrast with the methods and quality of advertising of a half century ago.

"I call to mind the exact wording of an ad that appeared in one of the leading illustrated weekly papers, in 1864, that occasioned a marked degree of contemplation in my youthful mind. It was as follows:

'HOW 'TIS DONE  
Whiskers in six weeks,  
Gambling Exposed,  
Fortune Telling  
Ventriloquism,  
All Free—for 25 cents.'

"What a wealth of knowledge offered for the meagre sum of 'two bits', aside from the advantage that would naturally accrue from 'whiskers' in so short a period of time.

"And, still—it occurs to me that there were no closed seasons against disappointments, and I find the same conditions in vogue today.

"About two weeks ago I was approached by a man whom I had hitherto regarded as my friend, who, without a moment's warning, asked me if I 'liked salt in my beer.'

"Memories of bygone days.

"Biff!! Bang!! Wowie!!

"Well—inquiry of the hospital authorities last night brought the information that they hope for his ultimate recovery."

\* \* \*

The matter of sane buying is the biggest factor in the welfare of business of every kind—from the management of a kitchen to the operation of a transcontinental traffic system, says my friend Josiah Borden of the Borden Stove Company, Philadelphia, Pennsylvania.

He illustrates the idea by repeating what a woman said about her vacation, as follows:

"I don't know what to do! If I buy new things, I sha'n't have any money left to go away with, and if I don't buy new things, what's the good of going away?"

\* \* \*

It isn't safe for an absent-minded man to ride a bicycle.

A neighbor of Louis Kuehn, President Milwaukee Corrugating Company, owns a bicycle and, also, is extremely forgetful at times.

The other morning he came out of his house, walked to the edge of the pavement and suddenly threw his right leg into the air with a vaulting movement. Of course, he fell sprawling to the ground.

"Hello, Dixon. What are you doing?" cried a neighbor, who rushed to help him.

Dixon rose to his feet and brushed the dust from his clothing.

"Oh, nothing," he muttered sheepishly. "Only thought I was mounting my bicycle. I forgot I hadn't the beastly thing with me."

\* \* \*

I am indebted for the subjoined story to my friend R. E. Pauley, of Mason City, Iowa, Secretary Iowa Sheet Metal Contractors' Association:

A bright little newsie entered a business office, and approaching a glum-looking man at one of the desks, began with an ingratiating smile:

"I'm selling thimbles to raise enough money to"—

"Out with you!" interrupted the man.

"Wouldn't you like to look at some nice thimbles?"

"I should say not!"

"They're fine, and I'd like to make a sale," he continued.

Turning in his chair fully to face the lad, the grouch caustically inquired:

"What'n seven kinds of blue blazes do you think I want with a thimble?"

Edging toward the door to make a safe getaway, the boy answered:

"Use it for a hat."

\* \* \*

Card players are sure to enjoy this clipping sent me by John H. Hussie, Secretary Western Warm Air Furnace and Supply Association, Omaha, Nebraska:

The teacher was trying to be up-to-date and explain monarchies. The pupils seemed to understand what she told them.

"Now," asked the teacher, "if the king dies, who rules?"

"The queen," suggested one little girl.

"Yes, under certain circumstances which I shall explain later, that is true," said teacher. "Now if the queen dies, who takes her place?"

Silence reigned for a moment, then a boy ventured to reply.

"The jack," he said.

\* \* \*

It is well for men in business to remember that the fundamentals of human nature never change. Many an ambitious project encounters failure because it runs contrary to the main currents of emotion. Whether our bodies be clothed in silk or cotton, whether we clip coupons for a living or drive nails, we all respond to the same general impulses. Here is one phase of the subject which is beautifully set forth in a poem published some years ago in the *New York Times*:

### The Lullaby.

I heard a savage mother crooning low  
Above her babe a quaint and plaintive song;  
Across the little face, slow to and fro,  
She moved her dusky hand, until ere long  
The Sandman came, soft-shooned, and tenderly,  
With coverlet of peace. I heard, again,  
A mother croon; all white and gold was she,  
And through her song there crept no haunting strain  
Of ancient sadness; long ago, the breeze  
That rung in Babylon the temple's chime  
Heard mothers sing old, tender melodies,  
First sung in years beyond all reckoned time;  
The lullabies—beneath the battle strains  
And din of ages—run their sweet refrains!

# Up-to-the-Minute News Siftings

*Items of Interest to Dealers Gleaned from Many Fields.  
National and Local Business Plans, Problems, and Practices.*

## **URGES RETAILERS TO PROFIT BY SPECIAL PUBLICITY CAMPAIGN.**

According to *The Magic Chef*, the house organ published by George M. Clark & Company Division American Stove Company, Chicago, Illinois, gas companies all over the country are following a concerted plan to create a special market for different gas appliances.

They have decided upon the week of May 15th as a week of gas oven cookery demonstrations.

George M. Clark & Company urge their dealers—and the advice is good for all dealers—to benefit by the demonstrations:

"Prepare to make it a big week in your gas range department.

"Plan for demonstrations. Plan for a fine window display.

"Cash in on this nation-wide propaganda of whole meal oven cookery.

"The wise merchant grasps opportunities offered.

"Here is a ready made opportunity for you.

"There will be talk about oven dinner cooking in the papers. There will be gas company advertising. There will be an awakened interest in the great possibilities of this great boon to womankind.

"Be prepared to make the fullest of this opportunity.

"Don't trust to luck that you'll get your share of the business. Go after it.

"Did you ever keep chickens? Or have you ever noticed what happens when the farmer's wife goes out with her pan full of chopped corn or greens for the chickens?

"The chickens don't believe in sitting back and waiting for the corn to drop into their mouths. They know the minute the farmer's wife puts her head outside the kitchen door that she is coming with their feed. They start rushing towards her from all parts of the lot. There is a mad scramble and the speediest of foot and quickest of eye get the chicken feed. That's enterprise. And that's the way it is in business. Sales won't drop into your store. You've got to go after them. And the one who goes after sales with the greatest speed and determination gets the prizes."

## **Guard Against Danger of Basement Fires.**

Basement fires constitute a serious hazard which demands greater attention on the part of property owners. Most of them are due to waste paper, packing boxes, excelsior and rubbish which should not be allowed to accumulate.

"Out of sight is out of mind," and many business men would be astounded if they realized the dangerous conditions they are permitting to exist in the portion of their premises usually most unguarded.

Fires starting in basements frequently get such a start that they are a serious menace to the lives of those on the floors above.

The remedy recommended by the fire prevention experts is better housekeeping in the basements, enforced by regular and frequent inspections by the owner or responsible employees.

All sorts of rubbish accumulates, dries and becomes inflammable, and the hazard is increased by the frequent custom of keeping oils and other dangerous materials there.

Many fires start from spontaneous combustion, from defective wiring or from the matches and stubs of careless smokers, and if excelsior, old boxes and waste paper are scattered about the blaze gets such a start that there is little chance of saving the property.

The fire runs up elevator shafts and stairways, and in many cases serious loss of life has followed.

Owners of property should see that waste paper and packing material is taken care of and removed regularly, and that rubbish is not allowed to accumulate.

They should make it their duty to see that this is done, and should also make certain that inflammables and explosives are properly safeguarded, that the wiring is standard, that smoking is not allowed, and that the general rules of good housekeeping are observed.

By doing this they will protect life and property, keep insurance rates down, safeguard their neighbors and the community, and do their share in reducing the preventable fire waste of the country.

## **Stove Molders Accept a Wage Reduction.**

Effective May 2, 1921, the stove shop molders throughout the entire country have agreed to accept a wage reduction of 15 per cent.

The new wage scale is at the rate of \$6.05 per day of eight hours, but piece workers—who include most of the molders—will make from \$8 to \$11 per day under the revised scale.

The removal of the factor of uncertainty in the wage question is certain to have a stabilizing effect upon the stove industry.

Although other difficulties remain to be adjusted, such as freight rates and material costs, there is considerable satisfaction in knowing that the likelihood of labor troubles has been practically eliminated by the action of the molders in accepting the wage reduction.

It is generally conceded that the 15 per cent decrease can not work any hardship upon the men because it leaves a big margin of earnings for industrious molders.

Furthermore, this reduction is a matter of justice to the stove shops of the country which have been carrying more than their share of the burdens incident to readjustment.



# How the New Idea of Collateral Advertising Works Out in Every Day Practice.

## Plan Started by Manufacturer of Semi-Finished Material Is Carried by Makers of Finished Products

There is an old adage which says, "hitch your wagon to a star," and many a man has adopted this saying as his guide, to the extent that in the conduct of his business he has been wise enough to stock nationally advertised brands.

But many in this class stopped with the "hitching on" process. They were content, like the boy who hooked his sled to the truck and slid along, to travel when the truck was moving, and they might even slide a bit farther on the impetus furnished by the truck, but they did nothing else than holding on. If the truck stopped on a hill they were likely to slip back to the bottom.

The real business man, however, uses another old adage along with the one quoted in the foregoing, this saying being, "God helps those who help themselves," and thus he has a good team with which his business load is pulled up the hill of competition toward the goal of success.

The accompanying illustrations show good examples of how the team of collateral advertising works.

Figure 1 is a reproduction of the illustration in a double-page "spread," the text matter of which reads

as follows:

"There is a Type of Store Where Armco Products Are Sold.

"The man or woman who buys a refrigerator, a stove, or a washing machine made with 'Armco' Ingot Iron is of a certain type.

"The manufacturer who puts 'Armco' Ingot Iron in his product must make a worthy article—must be a certain type of man—or he would use ordinary metal.

"Even the merchant, the dealer who sells Armco products, can be classified generally by that very fact, for we know of no poor article made from this iron.

"Therefore, the blue and gold Armco triangle carries with it an assurance of quality, of solid worth, wherever it is found.

"During the week of March 21-28, dealers are planning to make special displays of products made of 'Armco' Ingot Iron.

"Such nationally advertised products as 'Federal Washers,' 'Sanico Ranges,' 'Leonard Cleanable Refrigerators,' 'Buck's Stoves and Ranges,' 'Eden Washing Machines,' 'Globe Stoves and Ranges,' and 'Brascolites' are made of 'Armco' Ingot Iron.

"The American Rolling Mill Company, Box 335, Middletown, O."

It will be noted that the illustration shows a number of articles mentioned in the list. The double-page advertisement was published in the March 19th issue of the *Saturday Evening Post*.

Some of the manufacturers who use Armco Ingot Iron in the production of their wares tie up with the advertising of the American Rolling Mill Company by announcements of their own, as shown in the second illustration, all of which make mention of the fact that Armco Ingot Iron is the basic material in their product.

Note, for example, the statement of the American Range & Foundry Company: "Armco Iron, coated inside and out with everlasting, rust-proof, six metal Sanico porcelain assures a lifetime of service."

The footnote in the advertisement of the Brokaw-Eden Company, just above the signature trade-mark, reads as follows: "Armco rust-resisting iron is used in the Eden."

The Glove-Stove and Range Company places the following statement below the illustration of their pipe-less furnace: "The galvanized sheet metal casing enclosing the entire furnace, is made of Armco Iron—a guarantee of extraordinary wear-resistant qualities."

All of these three advertisements were directed to the consumer, having been published in the *Saturday Evening Post*, *Country Gentleman* and other general

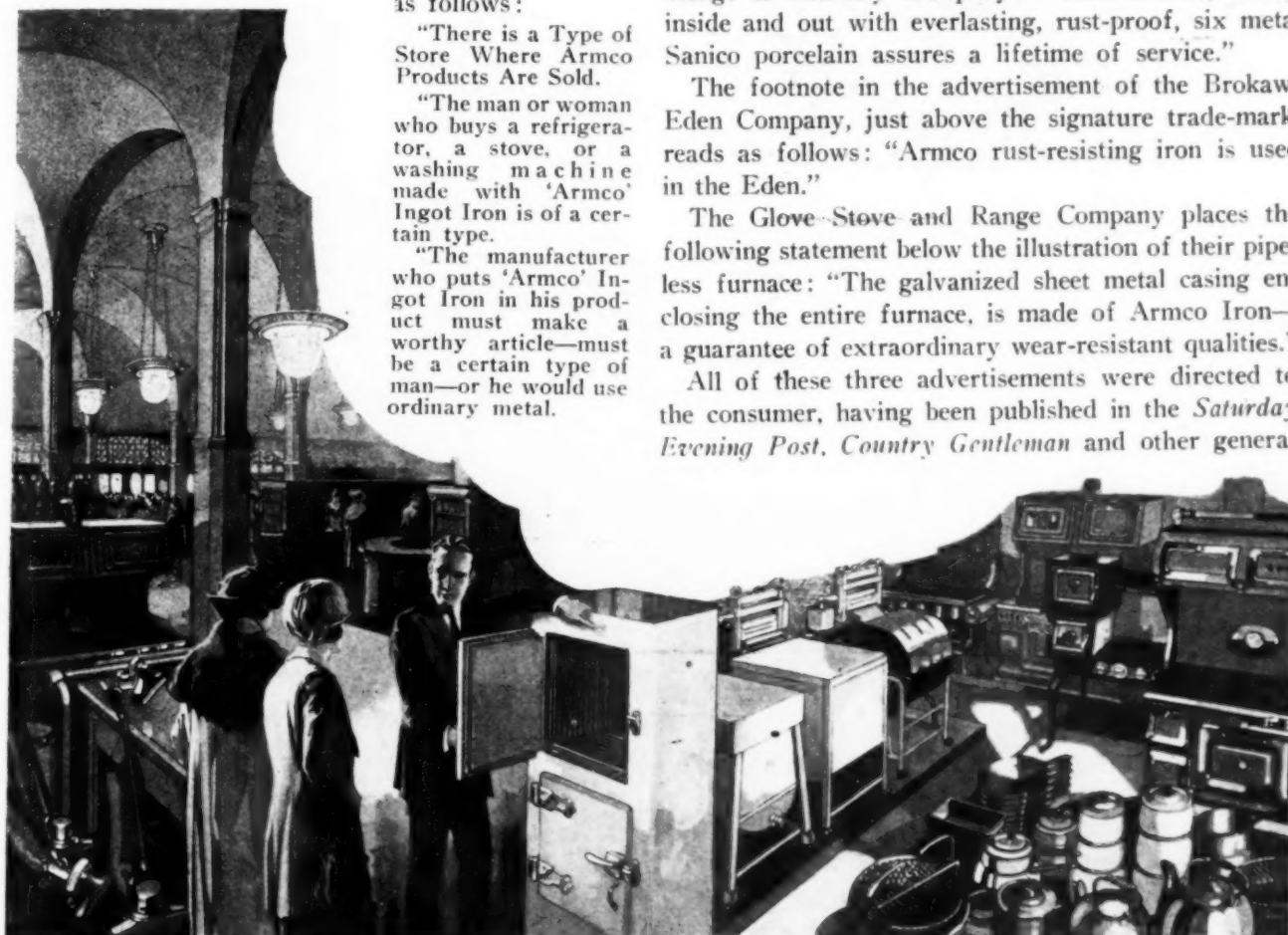


Illustration in Double-Page Advertisement of American Rolling Mill Company, Middletown, Ohio, Calling Attention to Many Hardware Items Manufactured from Armco Ingot Iron.

THE SATURDAY EVENING POST

25 YEAR GUARANTEE



**SANICO**

**The RUST-PROOF PORCELAIN RANGE**

SERVICE, economy, beauty and, above all, lasting satisfaction, that's what you get in the SANICO Porcelain Range. Its many conveniences, its special features, will appeal to you.

Armco Iron, enameled inside and out with everlasting, rust-proof, air-tight SANICO porcelain, assures a lifetime of service. Nothing but violent abuse can injure it. A full size range, not skimped to cut the price. Plenty of oven room for the big week-end baking or for roasting big turkeys. Plenty of room on top. Two Ranges in One—The SANICO Combination Range burns gas, coal or wood, two complete ranges in one, two full-size ovens, on either or both at once.

**The Range Beautiful**

Handsomely finished in glossing porcelain. Colors—Amber Blue, Snow White, Dark Blue or Black and White. Handsomely trimmed with heavy nickel in plain designs. No cracks and crevices to catch the dirt. Requires no bleaching—no polishing. As rust-proof and easy to clean as a china dish. Merely wipe clean with a damp cloth. Distinctively ornamental. Matches the most complete and modern kitchen appointments. Even distribution of heat assures perfect baking. Made—and made well—by one of America's foremost range, stove and furnace manufacturers.

to the basic national advertising campaign conducted by the American Rolling Mill Company.

The four manufacturing companies cited here did not stop with buying the nationally advertised product. They spent and are spending their own money in calling attention to the fact that the finished article which they manufacture is made from the semi-finished product of the "parent" advertiser—and that is one of the reasons why dealers and consumers alike show a preference for their finished products.

There is tremendous pulling power in collateral advertising. Its force is multiplied every time that a new link is added to the chain, or perhaps it would be more proper to say, every time a new "puller" is placed on the rope, like in a tug-of-war.

The cumulative effect of collateral advertising affects the final purchaser with so much more force than if, for example, the American Rolling Mill Company had been alone.

Some consumers might be expected to insist on having their washing machine made of Armco

THE SATURDAY EVENING POST



**The**

THE SATURDAY EVENING POST

**The Eden flushes the dirt out of clothes —not through them**





**BROOK-EDEN COMPANY**

**Eden**

**Your home, too, can be heated thoroughly with one register**

Hundreds of homes, throughout the year, enjoy warmth and comfort in every room but winter—hurry to your locality.

You can easily have a warm home, too. Here's how: Install a Globe Pipeless Furnace this month. Get it set up in a few hours. The pipe, on tearing up of floors, walls or ceilings. One register directly over the furnace heats the entire house evenly.

Then, next winter, learn what and comfort can be! The Globe Pipeless Furnace distributes heat, warm, and thoroughly. No dust. No dirt. Gets all the available heat out of every pound of fuel—hard, soft, stick and, averaging, wood, or coke. None of the

energy is lost in gas, smoke, or soot. No unnecessary heat in the cellar. Holds heat from twenty-four to thirty-six hours.

And how the Globe Pipeless Furnace gets its fuel! You'll actually save 25% on fuel every winter.

Learn more about the Globe Pipeless Furnace. Get the facts from your dealer. Let him explain how it's a Globe furnace—how it heats thoroughly—how it saves fuel.

Free Literature and Complete Information—Write For It

Learn how simply the Globe Pipeless Furnace operates—how it sends warmth into every room—how it cuts fuel bills. Take a minute and write now. A post card will do.

**THE GLOBE STOVE & RANGE CO.**

Deps. 000 Kalamazoo, Ind.

Also Makers of Globe Fast-Setting Stoves and Ranges

**GLOBE PIPELESS FURNACES**

A House Full of Clean Heat at Little Cost

publicity magazines.

In Figure 3 we show a reproduction of an advertisement addressed to the dealer which appeared in the Warm Air Heater Special of AMERICAN ARTISAN AND HARDWARE RECORD. It was published by the Peerless Foundry Company and contained the following statement:

"All our heaters (except the All Cast) are made of Genuine Armco Ingot Iron. All seams are riveted so that there are no seams to be packed with cement.

"Armco Iron is made to last. It is the most durable material that we could use in building our furnaces. It resists rust and will withstand the greatest heat."

All of these advertisements belong in the class of advertising which has become known as collateral advertising—the kind that is "hitched on"

Figure 2. Advertisements of Manufacturers Who Feature Fact that Armco Ingot Iron is Used in their Products.



Iron, but when they read that the Eden Washer is made of Armco Iron they are so much closer to making a decision in its favor—just because of that mention.

Just one little suggestion, however:

Some manufacturers still cling to the erroneous and expensive theory that retailers can be "forced" to handle a product by firing "broad-sides" at the consumer and paying little or no attention to the retailers.

That theory was exploded—long ago, and the American Rolling Mill Company, as well as many other "national" advertisers, is showing good judgment in following up its national advertising with just as ex-

tucky, offers to entertain the delegates to the annual congress of the National Retail Hardware Association, which is to be held June 20, 21, 22, and 23, 1921, in Louisville, Kentucky.

The entertainment will consist of a boat ride on the Ohio River, with music, dancing, and luncheon.

### **Demand for Paint Increases.**

The big lumber men of the country anticipate a building boom which will mean a return to pre-war prosperity all over the country.

They say that building has already started in the smaller cities where there are no labor troubles and that the Southern mills have more orders on their books than they can fill.

It naturally follows that with the warmer weather and the many "clean up and paint up" campaigns which are being inaugurated all over the country the movement of paints and paint materials into consuming channels should be greatly increased.

Many paint salesmen now report that the dealers, especially in the smaller cities and towns, are showing more disposition to get away from the policy of conservative buying which they have followed for so long and with the realization that prices are now down about as low as they will go they are more inclined to stock up their empty shelves in anticipation of a good spring consuming demand.

As far as the pigments are concerned the general demand has been rather quiet with the exception of lithopone, which has been the one bright spot in the situation.

Buyers of the latter, who have recently been taking a few barrels at a time, are now going back to their old time carlot orders and producers are expecting a capacity run of their factories very soon.

White lead is moving quite well, but there is not so much activity in the red oxides.

Zinc oxide is meeting with a fair demand, barytes are in plentiful supply and blanc fixe is quiet.

While inquiries for varnish gums are confined to small lots they are more numerous. While offerings are plentiful prices hold steady as replacement costs are above spot quotations.

December 25, 1921 AMERICAN ARTISAN AND HARDWARE RECORD 25

## Truly the PEERLESS Line

NO other line offers the dealer so great an opportunity for giving his customers the best that their money will buy. The PEERLESS LINE of warm air heaters contains more sound features of construction than any other line on the market.

All our heaters (except the All Cast) are made of GENUINE ARMCO INGOT IRON. All seams are riveted so that there are no seams to be packed with cement.

ARMCO IRON is made to last. It is the most durable material that we could use in building our furnaces. It resists rust and will withstand the greatest heat.

Write today for illustrated catalogs and circulars. We would be pleased to mail you our complete literature which describes each heater in our line in full detail. Get the distinctive matter now and learn about the many valuable PEERLESS FEATURES.

Our Engineering Department

We co-operate with our dealers to the fullest extent. We maintain a fully equipped Engineering Department for preparing full details plans and estimates. We will assist you in any style of heating system. Subject to no plans or sketch of building, including basement, giving size and location of chimney, distance between joints, size of girders, pipes, etc. It is necessary to have complete information in order to give you accurate estimates.

THIS SERVICE IS FREE. USE IT.

NOTICE the FIRE BRICK fire pot used in PEERLESS ARMCO IRON FURNACES. This is the same kind of brick that is used in boilers and cupolas and will stand an enormous degree of heat.

STEEL AND CAST IRON (OF WHICH OTHER FURNACES ARE MADE) CAN BE MELTED IN A FURNACE LINED WITH THESE BRICKS.

The fire pot on any furnace is usually the greatest expense in case it has to be replaced. With the PEERLESS ARMCO IRON FURNACE your customers receive not only the strongest fire pot constructed but the least expensive in case the fire brick needs to be replaced.

We offer the dealer an attractive co-operative selling agency plan. We want to tell you all about it.

Why not let us write you in detail about our PEERLESS HEATERS and how you can sell them with profit?

Send us a note today and be one among the hundreds of new PEERLESS dealers for 1921.

## PEERLESS FOUNDRY CO.

Manufacturers Warm Air Heaters, Duplex Registers and Furnace Fittings

1853-1955 Ludlow Avenue INDIANAPOLIS, INDIANA



Figure 3. Warm Air Furnace Manufacture: Emphasizes Armco Ingot Iron as Basic Material Used in Product.

cellent "copy" in the trade papers that are published in the interests of the men who use or sell its product.

If advertising in national publications—so-called general publicity media—is efficient in creating good will and demand for an article, and this is admitted—advertising in trade papers that reach the distributors of that article is just as necessary and efficient.

Leave out the trade paper advertising, and the beneficial effect of the general publicity is reduced by a much larger percentage than the national magazine space seller likes to admit.

### **Offers to Entertain Delegates to National Hardware Congress.**

With genuine southern hospitality, the Belnap Hardware & Manufacturing Company, Louisville, Ken-

### **Says That AMERICAN ARTISAN Is Very Interesting.**

TO AMERICAN ARTISAN AND HARDWARE RECORD:

Kindly enter our subscription for one year, sending us invoice for the same at your convenience.

Sample copies that have been sent us have been very interesting and carry many valuable suggestions.

Yours very truly,

THE PICKERING HARDWARE COMPANY.

Cincinnati, Ohio, April 28, 1921.

Those who Judge value by Price comparison, without considering Intrinsic worth and without Determining the capability of the Article to render the Service and obtain the Necessary results, always pay an Excessive price.

# Good Ideas for Window Display

*Practical Lessons from Exhibits in AMERICAN ARTISAN  
AND HARDWARE RECORD Window Display Competition.  
How to Get More Passers-By to Come into Your Store.*

## DISPLAY OF AUTO HARDWARE QUICKENS SALES.

The problem which confronted Anton F. Krcma in planning the window display shown in the accompanying illustration was how to introduce a new article of automobile hardware with the least amount of delay in getting it into the channel of sales.

At the outset, he realized that it would take longer to establish the article in question as a familiar object

sky blue cloth stretched over the full length of the back of the window.

"A few trees placed against the cloth comprised the entire background. The floor was covered with moss. At one side of the window was an automobile assembled with a figure of a man straining at the crank to turn over the engine.

"The man cranking the car has taken off his coat and is all exhausted from the efforts of his task. The



Exhibit of Auto Hardware Designed and Arranged by Anton F. Krcma, for J. J. Stangel Hardware Company, Manitowoc, Wisconsin.

in the minds of the people merely through newspaper advertising than through window advertising.

In arranging this window display for the J. J. Stangel Hardware Company, Manitowoc, Wisconsin, he felt the necessity of some device of human interest for holding the attention of the passer-by a sufficient length of time to present his message concerning the "Columbia Hot Shot" battery.

He succeeded in accomplishing his purpose by showing the front end, including the wheel, of an automobile with the figure of a man laboring most strenuously to crank the motor.

The significance of the automobile and the man cranking it is accentuated by a placard reading: "Where mere strength fails, why not use 'Columbia Hot Shot?'"

As described by Mr. Krcma the background was of

display suggests to the observer that the man could have avoided the trouble had he used a 'Columbia Hot Shot' starting battery.

"On the opposite side of the display was a complete assortment of dry batteries for every purpose.

"We also had a few 'Hot Shot' batteries connected to show how they can be used in farm houses, barns, in fact everywhere a light is needed.

"The sales resulting from this window display were more than enough to repay us for all the care and thought which we bestowed upon its arrangement."

It is Within reason to be Skeptical of something New, but is it Good reason to refuse to be Open to Conviction—and still worse—to refuse to Accept that which Will Increase your business When you have been Convinced?



### ***Incorporates Company to Make Cutlery.***

The Angel Products Corporation, New York City, has been organized, with \$25,000 capital stock, to manufacture cutlery. The incorporators are F. A. Spencer, G. Lessman, and G. A. Hund.

### ***Wants to Know Who Manufactures the Radio Spark Plug.***

TO AMERICAN ARTISAN AND HARDWARE RECORD:

We would like to know who manufactures and sells the Radio spark plug.

Yours truly,

VOLKMAN BROTHERS,

Springfield, Illinois, April 19, 1921.

### ***Hardware Company Is Incorporated.***

The Atwater Hardware Company has been incorporated with a capital stock of \$50,000 at Atwater, California. The temporary board of directors are: B. B. Garlock, A. I. Rodriguez, D. Steinberg, J. M. Trinidad, W. E. Landram, Chester Hull, and F. R. Thomson.

### ***Makes Good Connection Through Ad in AMERICAN ARTISAN.***

TO AMERICAN ARTISAN AND HARDWARE RECORD:

I have made very good business connections here in Morenci through an advertisement in your journal.

MILTON L. KISTLER.

Morenci, Michigan, April 23, 1921.

### ***Trade Opportunities in Foreign Lands.***

The Bureau of Foreign and Domestic Commerce through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

34737.—A mercantile firm in India desires to secure sole agencies for the sale of cutlery, etc. References.

34746.—A mercantile firm in Spain desires to secure an agency for and purchase tin plate. Quotations should be given c. i. f. Barcelona or Valencia. Correspondence should be in Spanish. Reference.

34753.—A commercial agent from Mexico who is in the United States is planning to return to his native country and wishes to secure an agency for the sale of hardware. Reference.

34757.—A mercantile firm in India desires to secure exclusive agencies for the sale in India, Burma, and Ceylon of hardware, metals, household furnishings, etc. No reference offered.

34768.—A hardware merchant firm in Canada desires to purchase food choppers. Quotations should be given f. o. b. port of shipment. Cash will be paid. Reference.

### ***Coming Conventions.***

Panhandle Hardware and Implement Association, Amarillo, Texas, May 8, 9 and 10, 1921. C. L. Thompson, Secretary-Treasurer, Canyon, Texas.

Stove Founders' National Defense Association, Hotel Astor, New York City, May 10, 1921. R. W. Sloan, Secretary, 826 Conwell Building, Scranton, Pennsylvania.

National Association of Stove Manufacturers, Hotel Astor, New York City, May 11 and 12, 1921. Robert S.

Wood, Secretary, National State Bank Building, Troy, New York.

Hardware Association of the Carolinas, Charlotte, North Carolina, May 10, 11, 12 and 13, 1921. T. W. Dixon, Secretary-Treasurer, Charlotte, North Carolina.

Iowa Sheet Metal Contractors' Association, Savery Hotel, Des Moines, Iowa, May 11 and 12, 1921. R. E. Pauley, Secretary, Mason City, Iowa.

American Hardware Manufacturers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 11, 12, 13, 1921. F. D. Mitchell, Secretary-Treasurer, 4106 Woolworth Building, New York City.

Old Guard Southern Hardware Salesmen's Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 12, 1921. R. P. Boyd, Secretary-Treasurer, Box 19, Rural Free Delivery Number 4, Knoxville, Tennessee.

Southern Hardware Jobbers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 11, 12, 13, 1921. John Donnan, Secretary-Treasurer, Richmond, Virginia.

Western Warm Air Furnace and Supply Association, Sioux City, Iowa, May 17 and 18, 1921. John H. Hussie, Secretary, Omaha, Nebraska.

Southeastern Retail Hardware and Implement Association (composed of Alabama, Florida, Georgia and Tennessee), Atlanta, Georgia, May 17, 18, 19 and 20, 1921. Walter Harlar, Secretary, 701 Grand Theater Building, Atlanta, Georgia.

National Warm Air Heating and Ventilating Association, Cleveland, Ohio, May 24, 1921. Allen W. Williams, Secretary, Columbia Building, Columbus, Ohio.

Metal Branch of the National Hardware Association, Hotel Cleveland, Cleveland, Ohio, June 3 and 4, 1921. George A. Fernley, Secretary, Philadelphia, Pennsylvania.

Mississippi Retail Hardware and Implement Association, Great Southern Hotel, Gulfport, Mississippi, June 14, 15, and 16, 1921. E. R. Gross, Secretary, Agricultural College, Mississippi.

American Society of Heating and Ventilating Engineers, Cleveland, Ohio, June 14, 15, 16 and 17, 1921. C. W. Obert, Secretary, 29 West 39th Street, New York City.

National Association of Sheet Metal Contractors, Fort Pitt Hotel, Pittsburgh, Pennsylvania, June 14, 15, 16, and 17, 1921. Edwin L. Seabrook, Secretary, 261 South Fourth Street Philadelphia, Pennsylvania.

National Retail Hardware Association, Louisville, Kentucky, June 20, 21, 22, and 23, 1921. Herbert P. Sheets, Secretary, Argos, Indiana.

Sheet Metal Contractors' Association of Ohio, Hotel Gibbons, Dayton, Ohio, July 19, 20, and 21, 1920. William J. Kaiser, Secretary, 123 East Chestnut Street, Columbus, Ohio.

Kentucky Hardware and Implement Association, Jefferson County Armory, Louisville, Kentucky, January 24, 25, 26, and 27, 1922. J. M. Stone, Secretary-Treasurer, Sturgis, Kentucky.

### ***Retail Hardware Doings.***

#### **Illinois.**

The South Side Hardware Company, 2903 South Adams street, Peoria, is now open for business with a complete line of hardware, cutlery, household ware, miners' supplies and tools.

#### **Michigan.**

Delbert Rimmel succeeds R. J. Davis in the hardware business at Mulliken.

Keeler Calvi and James Palmer have formed a copartnership and will engage in the hardware business in the Calvi building at Iron Mountain. Their store will be known as the Quality Hardware Store.

#### **Minnesota.**

Stolcis Brothers will open a first-class hardware store at McGregor.

P. E. Anderson and H. O. Hatleberg have moved to Gully, where they are entering the hardware business.

Judd Wright & Son, dealers in hardware, have bought the two-story brick building at 714-716 Laurel street at Brainard from Con O'Brien.

The Nyhus hardware store at Vining, was opened by J. S. Broberg, who recently purchased it.

#### **North Dakota.**

J. A. Kromer has disposed of his hardware and implement business at Luverne, and is now employed with the Emberton and West Company at Valley City.

#### **Texas.**

A hardware store is to be opened in East Waco by the Waco Hardware Company.

#### **Wisconsin.**

C. E. West, hardware dealer, has retired from business at Rice Lake. The new owners of the business are A. K. Michaelson, J. P. and William Schneider.

# Advertising Help and Comment

**Send Us Copies of Your Advertisements. Let Us Help You Get Bigger Results by Advice and Suggestions. The Service Is Free. Don't Hesitate to Take Advantage of It.**


The Riverside Hardware Company takes five well-known trade names and briefly describes the qualities for which they stand, in its advertisement herewith reproduced

**"YALE"**  
Locks for security.

**"SHERWIN WILLIAMS"**  
Paints for lasting qualities.

**"GUERNY"**  
Refrigerators for low ice consumption.

**"GARLAND"**  
Gas Stoves made for natural gas.



We Announce Price Reductions in Paints, Oils, Lead, Locks, Hinges, Nails, Cotton Ropes, Refrigerators, Tinware and Graniteware

**"COFFIELD"** Electric Washers for simplicity and quick washing—all copper tub.

**Riverside Hardware Co.**  
H. WOODWARD  
W. B. IRWIN  
121 MAIN ST.  
"ON THE SUNSET SIDE"

from the *Riverside Enterprise*, Riverside, California.

This is good educational publicity, although its benefits may not rebound directly to the Riverside Hardware Company.

The reader of the advertisement who ponders the phrase, "'Yale' for security," or "'Sherman Williams' Paints for lasting qualities," is not thereby induced to buy the goods from the Riverside Hardware Company.

Indeed, he is likely to forget the Riverside Hardware Company in connection with the articles and remember only the clever phrases of description.

In that case, he will probably buy the goods at the first hardware store to which he chances to come when he is in the purchasing mood.

From this angle of the matter, therefore, the advertisement is inconclusive, in spite of the fact that the advertiser says, in the illustration to the left, "we announce price reductions in paints, oils, locks," etc.

This announcement is not definite enough to offset the inconclusive impression of the rest of the text.

No idea is given of the amount

of the price reductions. Hence, there is nothing tangible from which to form an estimate of the advantages offered to the prospective customer.

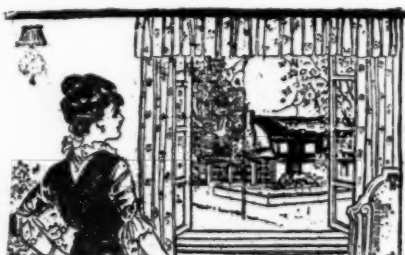
\* \* \*

Both illustration and text of the R. C. Ullrich Hardware Company's advertisement reproduced herewith from the *Mt. Clemens Leader*, Mt. Clemens, Michigan, are productive of pleasing impressions.

The text cleverly exploits the love of colors which is basic in human nature.

"Brightening things up for the indoor hours" is a phrase which lingers in one's memory, and stirs desire for the effects which it suggests.

Fadeless, washable, long lasting and sanitary are qualities of paint



**Just like bringing in the outdoors**

The skilful painter can bring into your home the soft, beautiful colors of the big outdoors by decorating your walls and ceilings with Lowe Brothers

**Mellotone**

—the liquid oil paint that is taking the place of wall paper in modern homes.

MELLOTONE colors are rich and warm. They seem to catch and hold the sunshine. They certainly do brighten things up for the indoor hours.

MELLOTONE is fadeless, washable, long-lasting and sanitary. Ask for a color card showing the soft-as-the-rainbow tints.

**R. C. Ullrich Hardware Co**



for which everyone seeks when buying such supplies.

The advertisement could be improved, however, by giving prospective customers some hint of prices—either by direct statement or by estimate of cost per room.

Scot Tissue Towels are as standard in their class as sterling silver is in metal ware.

Therefore, the featuring of these goods in the advertisement of the

## Scot Tissue Towels

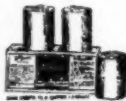
Are used in many of the largest and most important institutions in the country. Many of our local hotels and homes have found that Scot Tissue Towels fill a requirement which no other product meets. No washroom of today should be without Scot Tissue equipment—they go further—they dry and are the most economical.



The only towel that economically combines the demand of "Personal Hygiene" with all the qualities of a fine towel.  
No. 15 Folded Towels, 150 sheets to carton ..... **65c**  
No. 11 Handy Rolls, perforated ..... **75c**

## Sani-Tissue

is treated with Canadian Balsam, making the paper soft and cloth like. It is different from all other toilet papers.  
2,500 sheets in a carton of three rolls, per carton ..... **85c**



## Scot-Tissue



A scientifically made toilet paper. The very best pulp that can be bought is put into it. Constant and painstaking inspection during manufacture insure a paper that is as soft as old handkerchief linen.  
1,000 sheet rolls, per roll ..... **30c**

## Waldorf Toilet Paper

A standard in toilet paper for the past twenty-five years. When buying toilet paper always remember it's the quality and number of sheets that count. Waldorf is a soft paper of quality.  
650 sheets to a roll, price ..... **10c**



All Scot Papers Sold Cheaper in Case Lots

**THE EDWARDS & CHAMBERLIN**  
HARDWARE COMPANY.

Edwards & Chamberlin Hardware Company in the *Kalamazoo Gazette*, Kalamazoo, Michigan, helps create the impression that the Company carries high grade commodities in stock.

Once the people of a town learn that they can get the best goods of every line of hardware in a particular store, it is a comparatively simple task to retain their trade by continuously advertising quality goods.

The original of the Edwards & Chamberlin Hardware Company's advertisement measured 8¾ by 4½ inches.

It was, therefore, big enough for easy reading and effective illustration.

Price quotations in conspicuous figures add power to the persuasiveness of the copy.



# Warm Air Heating and Ventilating

*Better Installations. How to Sell More Warm Air Heaters.  
Reports of Progress in Warm Air Heater Research Work.  
Ventilating Factories, Garages, Theaters, and Houses.*

## DISCUSSES HEAT REGULATION IN RELATION TO HUMIDITY.

(Continued from last week.)

The nervous system is connected to nearly all parts of the body by conductors called nerves. Indeed, it is better to speak of the nerves as part of the nervous system, just as we would speak of the wires and cables as part of a telephone system.

A nerve is not a single conductor but is really a cable or bundle of separate insulated conductors or "nerve fibers."

Each particular nerve fiber forms a conductor from the nervous "central," for example, brain or spinal cord, to the particular distant organ with which that fiber is associated. Again, we see the analogy to the telephone system. But here one point of difference must be noted.

Part of the nerve fibers are strictly "afferent," that is, they conduct toward the "central." Others are strictly "efferent," conducting out from the "central."

A given conductor or nerve fiber, is never used in the body for messages in both directions, as is the case with telephone or telegraph wires.

One more fundamental fact:—just as all electric currents are essentially alike and, just as the difference in results obtained from commercial electric currents, such as heat, light and motion, depend on the apparatus to which the current arrives, so in the body all nerve currents (we call them "nerve impulses") are alike, and the differences in results are due not to different kinds of impulses, but to the different kinds of organs that receive the impulses.

The "central" nervous system, or brain and spinal cord, switches these impulses in accordance with definite pathways laid down in the system and in accordance with what pathways are open under different bodily conditions.

These switchings of nerve currents and the resulting responses, when involuntary, are called reflex actions.

For example, if one should breathe in some dust, the particles would irritate or stimulate nerve endings in the nose; nerve currents thus started would travel over nerve fibers to a certain part of the brain; from there they would be switched over or "reflected" to nerve fibers leading out to the muscles of the chest; these muscles would contract sharply; air would be violently driven out through the nose and the result is called a sneeze. It is a reflex or involuntary act.

### Body Thermostat Under Reflex Control.

The thermostatic control of the body is effected by widespread reflexes. Let us suppose one steps from a cold into a warm room.

The heat stimulates certain nerve endings in the

skin; nerve currents or impulses are aroused; these currents travel into the brain and cord; they are switched or relayed to other nerve fibers leading out to the blood vessels.

The muscle of the blood vessels of the internal organs is stimulated and contracts, so that the vessels are smaller; therefore, less blood goes there.

At the same time, the blood vessels of the skin dilate, and more blood goes there. Thus heat is lost, and the body accommodates itself to the warmer room.

If the room is very warm, especially if it is also humid, heat may not be lost fast enough by radiation and conduction and the temperature of the skin may rise.

Presently through the stronger stimulation of the same nerve endings or stimulation of others not previously in action (we do not know as yet which of these is true), nerve currents are switched along the fibers that lead to the sweat glands, and evaporation comes to the assistance of conduction and radiation.

If a person is working hard his body sweats. In this case, the reflex is the same, the warming of the skin being due to the flow of hot blood from within.

One can easily construct the explanation for other external or internal conditions.

Table 1 shows the percentage of heat loss by the various methods, as determined by physiologists.

TABLE 1. TOTAL HEAT LOSS FROM THE HUMAN BODY.

	Vierordt		Atwater Resting Man		Atwater Working Man	
	Cal.	Per cent	Cal.	Per cent	Cal.	Per cent
Urine and feces...	47.5	1.8	31	1.4	26	0.6
Warming air.....	84.5	3.5				
Evapor. from lungs	182	7.2	548	24.2	859	20.3
Evapor. from skin.	364	14.5				
Radia. and conduct.	1792	73	1683	74.4	3440	79.1
	2470	100%	2262	100%	4225*	100%

\*Also did external work equivalent to 450 calories.

From the foregoing it will be clear that these figures represent particular cases. The relative losses may vary greatly from these figures. Everyone can see how numerous are the factors both external and internal, to which the heat regulating devices of the body are able to adjust.

Of course this means that we are adapted to live under a great variety of conditions.

In other words, the range of the normal is wide; and it is unscientific to say this or that is the best temperature, this or that is the best humidity, this or that is the best air movement.

### Practical Importance of Humidity.

Man adjusts himself to every degree of atmospheric moisture from the practically absolute dryness of sub-zero air to the saturated air of tropical forests.

Humidity is of little importance except when considered in connection with other conditions, particularly temperature and air movement.

The most usual condition under which the body heat control breaks down is high humidity and high temperature combined. This condition obtains in crowded rooms and auditoriums, because every person gives off both heat and water vapor. Such rooms need primarily new and moderately heated air.

(Continued next week.)

### **New Warm Air Heater Company Is Organized.**

With an executive staff of experienced men, the Mount Vernon Furnace and Manufacturing Company has been organized at Mount Vernon, Illinois, to manufacture a line of pipeless and pipe warm air heaters and to do a general jobbing business in grey iron castings.

C. T. Mullen is president of the company, C. T. Mulroy, vice-president, Carl Schweinfurth, general manager, and Arthur St. C. Ward, secretary-treasurer.

### **The Majestic Company Publishes Artistic Catalogue.**

How registers can be made an ornament to a room instead of being more or less out of harmony with the furniture and color scheme of the room, is shown quite convincingly in the new catalogue of Duplex Registers just issued by the Majestic Company, Huntington, Indiana.

This catalogue is artistically illustrated in colors and can be used by dealers and installers in explaining warm air heater installation to prospective customers.

### **Sioux City Warm Air Heater Men Object to Ordinance.**

According to reports in the *Sioux City Journal*, Sioux City, Iowa, warm air heater dealers and installers of that municipality have declared war on the section of the new city building code which is designed for the control and inspection of hot air furnaces.

"A fiery session between the furnace men, F. E. Colby, building inspector, and the city council was held April 22nd, having been called on the provisions of the code. As a result of arguments, on suggestion of Mayor Short the matter was referred to Councilman J. B. Mann, head of the public safety department, and the city inspection department.

"E. J. Dodd, president of the Western Warm Air Furnace and Supply Association, acted as spokesman for the furnace men.

"Furnace concerns represented were the Morning-side Furnace company, Olson Furnace company, Norfolk Furnace company, Schultz & Piuser and W. D. Hunt.

"Mr. Dodd declared that there are two alternatives confronting the furnace men. One is to have the present ordinance repealed and get a working ordinance, and the other is to go out of business.

"He advised that the council repeal the section of the building code regulating hot air furnaces, and adopt the Omaha ordinance, which he said is standard throughout the country and provides for better inspection and service.

"The suggestion made by F. E. Colby, building inspector, that he contemplates placing the inspection of furnaces under the plumbing department, aroused the indignation of the furnace men.

"'We won't stand for it,' asserted Mr. Dodd emphatically. 'Plumbers know nothing about furnaces. When it comes down to brass tacks if an attempt is made to place the furnace inspection under the plumbers we will ask an injunction against the city to stop it. We want absolute and perfect inspection by an inspector who knows the business.'

"Councilman Mann assured the furnace men that he has no intention of allowing a plumber to inspect their work, as plumbers and furnace men are naturally antagonistic when it comes to the installation of pipes.

"Mr. Dodd stated that the furnace men had not come in an antagonistic spirit, and that he did not believe the city would knowingly enact an ordinance discriminating against any particular business.

"He quoted section 3 of the ordinance, and explained how impossible furnace men find the installation of furnaces under the specifications.

"He claimed that it is impossible to get a furnace stack in a partition and leave the half inch space surrounding, owing to the size of the pipe and to the fact that the building code provides that the studding be placed so close together that room for such installation is not given.

"The fact that open spaces around registers is provided for was ridiculed by Mr. Dodd, who declared that registers so installed would leave ugly holes looking into basements.

"Mayor Short suggested that the problem be referred to a committee of furnace men and the public safety and building department. He stated that it appeared that the furnace men place a different interpretation of the ordinance than is placed by the city building department, or the writers of the code, and declared that he believes a satisfactory settlement will be reached.

"'Sure, we can settle it,' said Mr. Mann.

"The committees will investigate the provisions objected to and demonstrate the practicability of adhering to them before action is taken to amend the code, or repeal the section relating to furnaces and adopt the Omaha furnace ordinance."

### **Cleveland Engineering Institute States Its Requirements.**

The requirements of the Cleveland Engineering Institute, Cleveland, Ohio, for its scientific course in heating and ventilating engineering are herewith set forth for the benefit of those who are thinking of taking up such studies:

"Due to the nature of this course and the function of the Institute it is necessary that certain qualifications be required of all applicants. These are designed for protection of the student and to maintain the necessary high standard for the School.

"While the course is presented in a comprehensive manner, backed up with expert individual instruction, it is necessary that all students possess certain educational qualifications upon which to build. These re-



quirements are listed below and are considered reasonably essential to the progress of the student in this branch of study.

"The applicant

"1st—Must be engaged directly or indirectly in the Heating and Ventilating field.

"2nd—Must be at least 18 years old.

"3rd—Must have had at least 6 years' elementary (common) school training; 2 years of which were in English speaking school.

"4th—Should have a fair knowledge of the fundamentals of Arithmetic and of the English language.

"5th—Must signify his full intention to study the entire course and to follow as closely as possible the regular routine of completing one lesson each week.

"6th—Must conform to the rules and regulations governing the Institute and to follow his work diligently in keeping with the instructions of the Director of Instruction."

### ***Makes Suggestions to Improve Arch Wilson's Installation.***

TO AMERICAN ARTISAN AND HARDWARE RECORD:

In your issue of April 9th, you published an article on warm air heating by Mr. Arch Wilson of Bethany, Missouri. I have written him offering suggestions as to how the circulation in this particular job might be improved.

I did not have time to get up blue prints and I did not consider it necessary, as the suggestions which I offered to Mr. Wilson are simply a matter of larger openings and larger registers.

I am enclosing a copy of my letter to Mr. Wilson.

Yours truly,

H. J. CLARE,

Clare Brothers Western, Ltd.,

Winnipeg, Canada, April 21, 1921.

The text of Mr. Clare's letter, referred to in the foregoing, is herewith reproduced for the benefit of readers who have been following the discussion of Mr. Wilson's installation problem:

"Being a subscriber to the AMERICAN ARTISAN AND HARDWARE RECORD, I have noticed your article with sketches on the installation of a warm air heating plant, on page 23 in the issue of April 9th, and as I have been connected with the warm air heating business for many years, I have had considerable opportunity of experimenting with warm air heating plants that have given trouble.

"Through experience I have found out that there is a vast difference between hot air and warm air heating. I think that furnace manufacturers should adopt a new rule, that is; instead of quoting heating capacities in cubic feet as a rating for furnaces, they should quote the number of inches of air that a furnace will handle and educate the installer to have the combined warm air openings on each furnace equal to the number of inches of air that the furnace generates and instruct the installer to install an equal amount of cold air.

"In other words, the combined area of the warm and cold air pipes should be equal and have the capacity of carrying off the air that the furnace generates.

"You no doubt are aware that there is a great differ-

ence in air-carrying capacity of different furnaces, but from the description that you have given in this article, I imagine that the furnace which you installed would be capable of handling between 600 to 700 inches of air; and I note that the cold air openings at the furnace is equal to 624 inches, but your warm air outlet is only 24 inches by 24 inches and is covered with a register face, but as the fretwork in a register closes off from 30 to 50 per cent of the area, the air opening in this will be less than 400 square inches.

"You make particular mention that the top of the warm air elbow gets very hot. This indicates that the furnace is generating more air than can get through the warm air register, consequently you get super-heated air. You would find a wonderful improvement if you would take off the register.

"If you intend to change the warm air opening I would advise making it 24 inches by 30 inches or any other shape you desire, to get an opening equalling 700 square inches, and cover the opening with a wire screen instead of a register face.

"The cold air opening of this furnace is quite large enough, but it would improve the circulation if you would use a larger cold air register face that would have sufficient opening in it to carry say, 600 square inches of air.

"The furnace under present conditions, is a hot air system in my estimation, and no doubt is heating the house to the satisfaction of the owner, but if you will convert this into a warm air system by means of larger openings the air in the house will be pleasing. There will be considerable reduction in the amount of fuel required and the furnace will last a life time.

"You may be surprised to receive the above suggestions from a Canadian, but when you consider that we are probably 1,000 miles North of you, where we have severe winter weather for at least four months, where we do not consider it very cold in January and February until it is at least 20 degrees below zero and occasionally 40 degrees below, we are compelled to make preparations to keep warm and 'necessity is the mother of invention'."

### ***Homer Furnace Company Resumes Production.***

The plant of the Homer Furnace Company in Coldwater, Michigan, is again in operation after a period of suspension. The former employes of the company were given first consideration in the hiring of workers for the resumption of production. The company announced a general cut of 20 per cent in wages in every department of the plant.

### ***Sells its Butler Warm Air Heater Business.***

After many years of successful production and marketing of the Butler Furnace, the F. B. Zieg Manufacturing Company, Fredericktown, Ohio, has sold its Butler Furnace business to the Ramey Manufacturing Company, Columbus, Ohio.

Give your customers good goods but give them good treatment too.

# Practical Helps for Tinsmiths

*No Two Jobs Are Exactly Alike. Therefore, the Sheet Metal Worker Has to Meet Each Difficulty as It Comes. Send Your Problems to Us. Let Our Experts Help You.*

## PATTERNS FOR ROUND TORPEDO DASH HOOD.

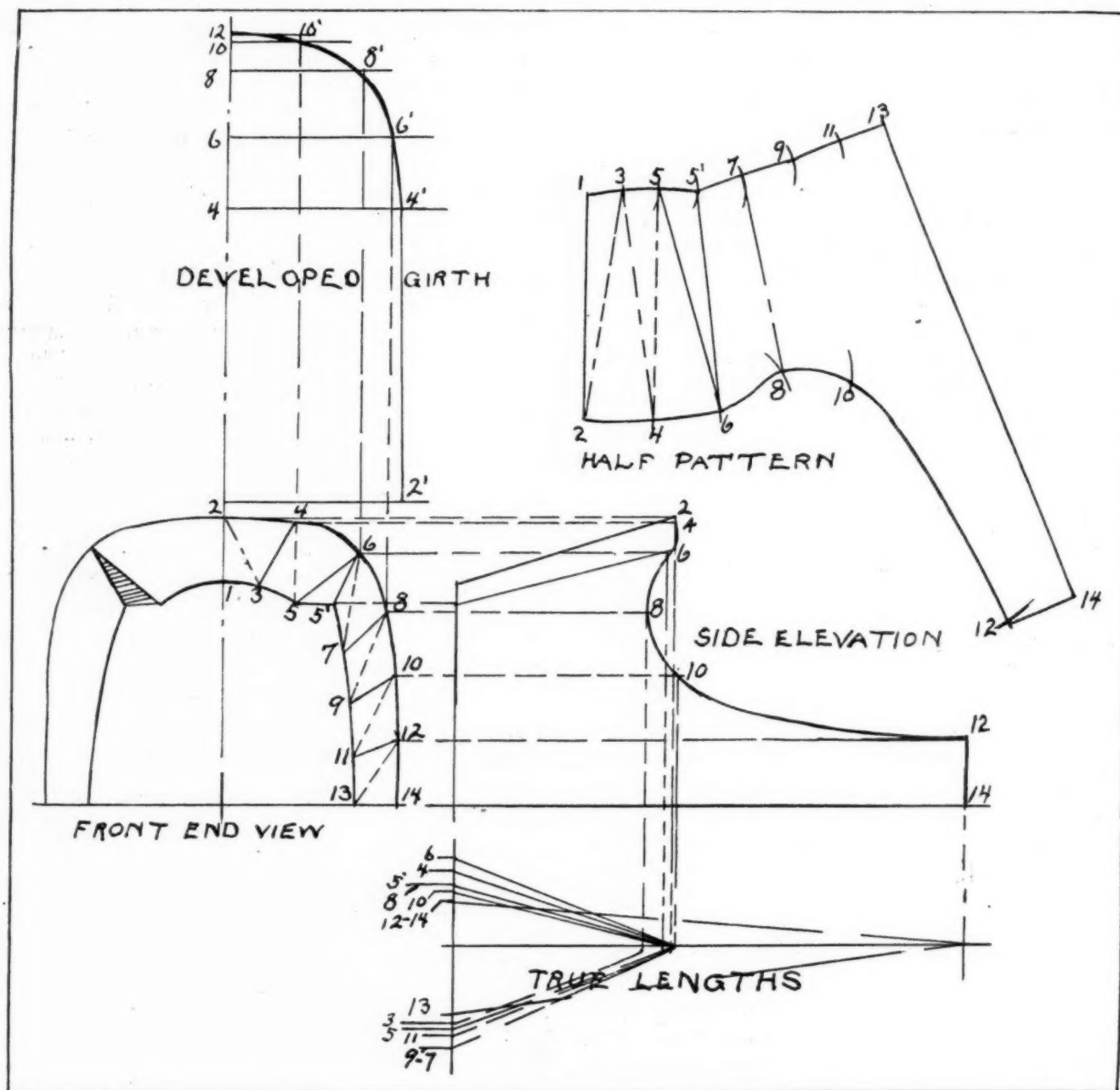
By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri. Written especially for American Artisan and Hardware Record.

The dash hood of an automobile is made in a variety of designs, although they do not permit the variety

the points in side elevation as 1-3-5-7-9, etc., to base line.

Then with dividers pick the lines, as 1-2; 2-3; 3-4; 4-5, etc., from plan and set the solid lines on top of diagram, and the dotted lines on the bottom of diagram.

This gives the points on the vertical line, and when over to heel of elevation thereby establishing points



Patterns for Round Torpedo Dash Hood.

of creations which the rear body permits. Still these dash hoods can be designed to give grace and utility.

In our drawing, the top body of dash hood forms a uniform curve, described with radius  $R$  and  $r$ .

It is best to first draw the side elevation making

the height and length, also curve 1-13 to suit conditions.

After this, detail the front end elevation to suit the width of car, and height of side elevation.

Divide each curve in equal spaces as 1-9 and 2-8.



Join these points with lines, thus dividing the flare into triangles as shown.

From each point in the heel as 1-9-14, project lines 1-3-5-7-9, etc., in side elevation.

Observe this gives the altitudinal heights, or in this case the lengths from front to curve.

To find the true lengths, drop lines from each of lines are drawn to those corresponding points in horizontal line. This gives the true lengths as shown.

Now observe the heel of end view is not a correct girth, nor is 1-9-13 of side elevation a true girth. Hence we have to develop one.

Pick the spaces, as 1-3-5-7-9, etc., 13 from side elevation, and set as 1'-3'-5'-7', etc., above end view.

Square out stretchout lines, and erect lines from all points in heel of end view.

Where intersections are made as at 3"-5"-7", etc., trace a line and you have the developed girth.

To set out the pattern, draw any line as 1-2 of elevation, for the small end pick the girth from the spaces 2-4-6-8, etc., of end view.

But for the large end, pick the girth from the developed girth as 1'-13" and set as 1-3 in pattern.

Pick true length 2-3 and using 2 in pattern as center, cross arcs in point 3. Then pick true length 3-4 and using the new point as center, cross arcs in point 4. Then strike arcs as at 5 and 6, and cross these arcs with true lengths 4-5 and 5-6.

Repeat in this way until the full pattern is finished. Laps for attaching to the chassis and also for putting the reinforcement bar along the heel are allowed extra.

### ***Starts New Sheet Metal Shop.***

A new sheet metal firm has been organized under the name of Thornton & Farrell in Elkhart, Indiana.

The shop is located at 346 West Crawford Street, Elkhart, and is equipped for general sheet metal work, including warm air heater business.

Oliver H. Thornton has lived in Elkhart many years and his partner in the new enterprise, Claud Farrell, came to Elkhart several months ago from Joliet, Illinois.

### ***Opens a Tinsmith Shop.***

A tinsmith shop was opened recently by Frank J. Truel and Son at 141 West First Street, Oswego, New York. The new firm will make a specialty of furnace repair work and automobile accessories.

### ***Zinc Company Gives Directions for Forming Zinc.***

Working details which help simplify the operation of forming zinc are given by the New Jersey Zinc Company, 106 Front street, New York, as follows:

Depth of first cup not to be more than 45 to 50 per cent of its diameter. Subsequent steps may be about the same as in brass.

The best results will be obtained by starting with a blank of the same gauge as the desired ultimate wall thickness.

Use as little tension as possible on pressure pad, barely enough to keep blank from wrinkling.

Give dies as much radius as possible. This will

reduce breakage to a minimum, and will also reduce wear on tools.

Soap appears to be the satisfactory lubricant.

Annealing and pickling unnecessary. In fact, such operations are harmful.

### ***Cost Accounting Is Essential to Successful Business.***

The old-fashioned merchant, or corporation head, who still clings to the antiquated system of taking an inventory once every year and determining what the results of his business were by the difference between the inventories at the beginning and end of the year and the purchases and sales, scoffs at costs.

Modern industry is highly specialized and extremely complex, and in order to obtain the best results under such conditions, it is essential to improve upon the old-fashioned method.

From the selling point of view, costs are essential. Under a lack of system, a manufacturer making several different classes of goods might be losing huge sums on one or more and more than making such losses up by abnormal profits on other classes, resulting in a fair profit for the year, in total ignorance of the fact that if he had really known what his costs were for each class of goods, he would have been in a position largely to increase his profits and at the same time, in case of need, to cut his prices and thus secure more business on some classes of product. A company having a good cost system is in a position to decline or discourage the sale of unprofitable classes of goods and throw such sales to a competitor who does not have a cost system. It is no exaggeration to say that no sales policy of any company can be properly handled without accurate information as to the cost of the product sold.

### ***Radiator Repair Work Is Easy and Profitable.***

The whole trend of training and experience of the sheet metal worker fits him to do automobile radiator repair.

He does not have to learn a new trade in order to perform the operations involved in this class of business.

None of the principles of the sheet metal craft which he uses in his daily tasks has to be modified or rejected to enable him to do radiator repairs or replacements.

Especially advantageous are his knowledge of and skill in soldering as applied to the new branch of his trade.

To the owner of a sheet metal shop, therefore, automobile radiator repairing offers no difficulties from the point of view of training his employees for the work.

The necessary instructions are readily obtainable. They are simple and easy to understand. They contain no obscure technicalities and require no pattern drafting or intricate mathematics.

From the angle of profit, automobile radiator repair work is worth serious consideration.

By the right kind of advertising, any shop can get enough radiator repair business to keep its men busy all the year around—even in the coldest weather.

# *The Main Reason Why So Many Sheet Metal Men Are Not Rich Is Because They Are Very Poor Guessers.*

*Unless You Have an Accurate Cost System for Determining Your Expense of Doing Business, You Can Not Be Certain of Profit.*

Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by J. C. Greenberg, Peoria, Illinois.

(Copyright 1921 by J. C. Greenberg.)

Just why is it that nearly all trades are netting good incomes and all businesses are paying well, but the sheet metal trade?

Just why is it that so very few men in this business are rich?

The reason why I ask these questions is as follows: I have visited many sheet metal shops in my day and have observed that the facts are as above stated. I did not, however, let the thing slide by, but have made an attempt to find out the reason for this condition.

I believe that I have found out at least one reason that contributes greatly to the cause of poverty and dissatisfaction.

You the reader, may be satisfied, and are on the great road to success, but if you could be twice as efficient, you would earn a greater net gain. Am I right?

Now, then, I have found out that the reason why so many sheet metal men are not rich is that they are very poor guessers. They do not seem to guess right, and fall down most of the time.

Here is how it stacked up when I made my observations: When I entered a shop, and got to talking to the boss, he hardly ever knew from whom he bought paint, or how much he has paid for it.

I have also noticed that he hardly ever knew how much his overhead was, and how much his profit is going to be. You see he always tries to guess, and since we are all very poor guessers, the results are very poor.

I honestly believe that if some of the sheet metal men I know would just match dollars with a view of winning a profit, they would have a better chance to succeed as far as riches are concerned.

Just imagine: No system, no bookkeeping, no cost system. Is it a wonder why some of us are not successes?

Now when I say these things, I am telling the truth. I can prove them right now, and here goes. You the reader, just lay this AMERICAN ARTISAN AND HARD-

WARE RECORD away for a moment and ask yourself these questions:

"How are my books kept? How much do I know to a certainty about my business? How many of my accounts can I collect at once? How is my profit going to pan out?"

When you pick this magazine up again, you will just have a smile on your face and continue reading.

The real question then is, what must we do to become better business men? My answer is plain and simple: Have system.

Get over that old foggy idea that you do not believe in keeping books. A good book-keeping system tells you a true story of your business, and it gives you a correct answer to your standing.

You may have a sort of a system, but a poor one. A poor system is worse than none at all, because when you have no system at all, you may guess right once in a while—but a poor system lies to you all the time, and because it is a lying system, you are always wrong about your business.

It works out like this: No system. no order. No order, no knowledge of costs. No knowledge of costs, no profit.

You can not possibly know how much to charge for a job if you do not know how

much it costs you in the first place.

If you do not know how much to charge, you can not know how much to draw out of your business. It then follows out logically that if you do not know how much to draw, you can not know how much to spend for your living.

This is why you guess your life away. This is a serious piece of business. It is a pity to notice how this is being done, and how many sheet metal men who are good honest and conscientious men go down to failure.

I do not mean bankruptcy. I simply mean that if a man does not make a profit on his business he is a failure. He is not in business if he is not making any money—he is in trouble.

**The business man without a cost-finding system is engaged in a losing game. Just as in any other form of gambling, the ultimate chances are against him. He is working on vague probabilities instead of on the sure foundation of certainties.**

**His so-called gross profits are more or less meaningless. They simply signify the entire income of his business. They are quite different from profit itself. Profit is the amount which remains after all expenses, including depreciation, interest on capital invested, and taxes and insurance have been paid. Furthermore, real profit is not reached until a reasonable salary for the employer himself has been subtracted from the gross income.**



So my aim is to get you out of trouble by waking you up to some facts that must be remedied if you want to show a bank account when you are too old to work.

First, get your business in a systematic shape. Get out of the rut by knowing costs of material and labor, and place a fair profit on your work.

Please remember that your business has items that all business has. You have costs which take in labor and material. You have overhead, and you have a selling price to establish which has in it your profit.

If you do not know the answer to any of these departments of your business you are guessing at your business, and as long as you are guessing, please remember that it is absolutely impossible to guess right all the time.

If you have a proper system, you will have a sure way of making a statement to your banker, which means money when you need it. If you have a system, you can make a statement to Duns and you have goods on credit when you want it. It all depends on system in your office.

Your system should teach you the difference between cost of a job itself and the overhead on it. Your system should tell you what to charge to the job and what to charge to your overhead. All costs are not overhead.

You should know that the money you draw for your "living" is not your profit because you must spend it in order to live to work. Your profit is what you have left after all your expenses have been paid, and are able to invest in order to earn more money.

I wish to impress you with one great truth. Here it is: "Anybody knows how to make money, but very few know when they are making money."

You may think that you are making money, but when the final show down comes around, you are up against disappointment and disgust, and blame your business. The sheet metal business is a good business, if the boss is a good business man. Do not blame the business but rather blame the man who runs it.

It takes a pretty brave boss to give himself the once over and say that he is not a fit man to conduct business unless he improves and runs business in a business way.

How is your system? How are your books kept? How soon can you find out your real standing? Have you a business, or has the business got you?

No, listen brother: I know what I am talking about and so do you. You know that this is not mere "bull." You may be the man I am talking to. I hope so.

If you think that by agreeing with me you will save yourself, I want to tell you that you are mistaken. Do not smile and say "That's right, all right." But get on the job and be a real knowing business man.

Doggone it, you can't get ahead in this world of progress unless you do the right thing at the right time. The only thing I ask is action on your part in the right direction.

Bring this article to your meeting and read it out loud. I am certain that there will be someone who will think I am talking directly to them.

Talk this thing over, and get together on a remedy. Keep a set of double entry books and know all about your business.

### ***Sends Pattern for Wash Boiler Lid in Two Pieces.***

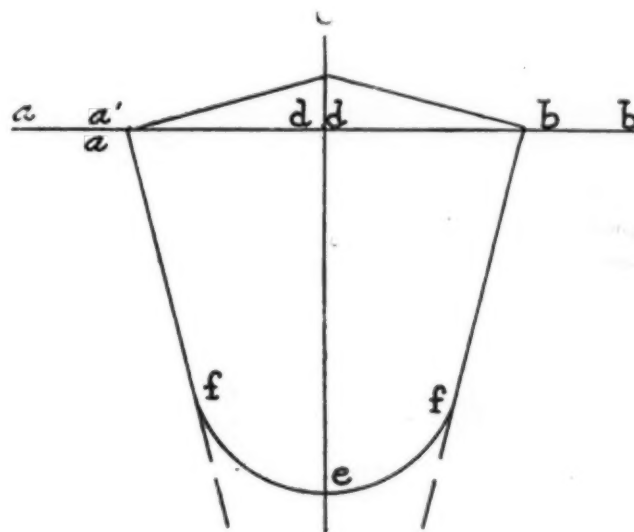
TO AMERICAN ARTISAN AND HARDWARE RECORD:

In answer to the problem of Nathaniel T. Potts of Wellsburg, West Virginia, on page 33 of your issue of April 23rd, I submit the following solution in the hope that it may be of some value to him:

Draw any line, as a, b, of sufficient length for the purpose.

In center of line a, b, cross line c, e at right angles as shown in the accompanying drawing.

Let d and e be equal to one-half the length of the boiler; d to c should be from  $\frac{1}{4}$  to  $\frac{3}{8}$  of an inch in elevation, depending on the pitch one desires. The



**Pattern for Wash Boiler Lid in Two Pieces.**

$\frac{3}{8}$ -inch will develop about the pitch shown in the sketch given by Mr. Potts on the common boiler.

The arc f', e', should be equal to width of boiler, or dividers should be set so as to describe a circle equal in diameter to width of boiler.

To get the outline of half patterns, place a square in such a manner that it will at the same time cut point c, b' and f as shown. Treat other half of pattern likewise.

Measurement for seams must be allowed extra.

The other end of pattern should be obtained by duplication, or using this one as pattern or template is the better way of the two.

Yours very truly,

JAMES D. GRACE.

Elmer, Missouri, April 25, 1921.

### ***Gets AMERICAN ARTISAN for Use of Employee.***

TO AMERICAN ARTISAN AND HARDWARE RECORD:

I am engaged in the general line of tin shop work, including heating, ventilating, and roofing. My employer subscribes for your journal for my special use in the shop. I find it a great help to me.

Respectfully yours,

R. W. MORTENSEN.

Vermillion, South Dakota, April 25, 1921.

A small advance in price Yields a Larger Income in results.

## The Best Method of Installing a Section of Core in Automobile Radiator.

Written for AMERICAN ARTISAN AND HARDWARE RECORD  
by F. L. Curfman, Maryville, Missouri.

In this article we shall learn about the method which has been found most successful for repairing mutilated automobile radiators.

If by chance a section of the core has been mutilated a new section can be installed, without putting in an entirely new core. The illustration as shown is of a Baublet patent, which you will recognize at once as it is used extensively on the Overlands and Buicks. This is one of the easiest cores on which to make this repair.

You simply cut above and below the damaged part using a sharp putty knife or like instrument. With a torch melt the solder on both sides front and back, slip out damaged piece. See that there is no leak between the cells. Cut section same size as damaged piece taken out, slip this section into opening in core and solder the edges front and back, and the job is completed.

This repair can be made on most any type of honey-comb core, and the up and down division on either side must be made by taking out only one side of the water cell, but in this core it is easier as the section taken out will be in a square where on most others, the sides follow the shape of the cell, and will require tying up as in Figure 1 in the preceding article.

This Baublet patent core is the only core which can be plugged in the ends of the cells without soldering the up and down cell where it is met with the cross bracing back through the core.

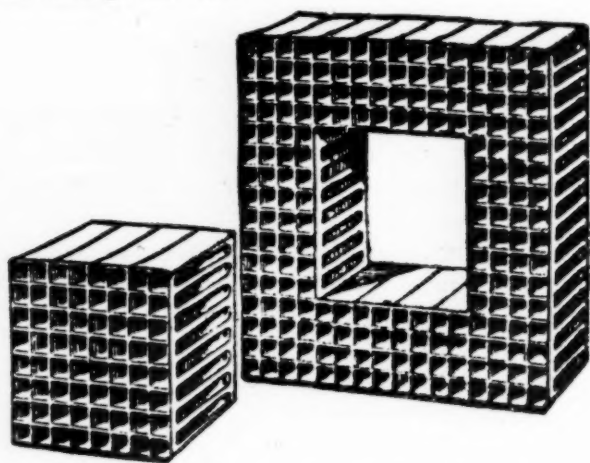


Figure 2. Showing Section of Core Insertion.

Owing to formation of the cells in this core which form almost a circle in a horizontal position through the core, on freezing the expansion causes a leak at the cross of the up and down cell and cross bracing. If soldering these with the iron, tin back each way from the cross and build with solder.

If soldering with needle flame torch, pry open as much as possible, clean with muriatic acid, apply soldering flux, heat sufficiently hot to draw solder down in the crevice.

### The Harrison Core.

As about half the cores on the medium priced cars

are the Harrison make we show here an illustration of its construction.

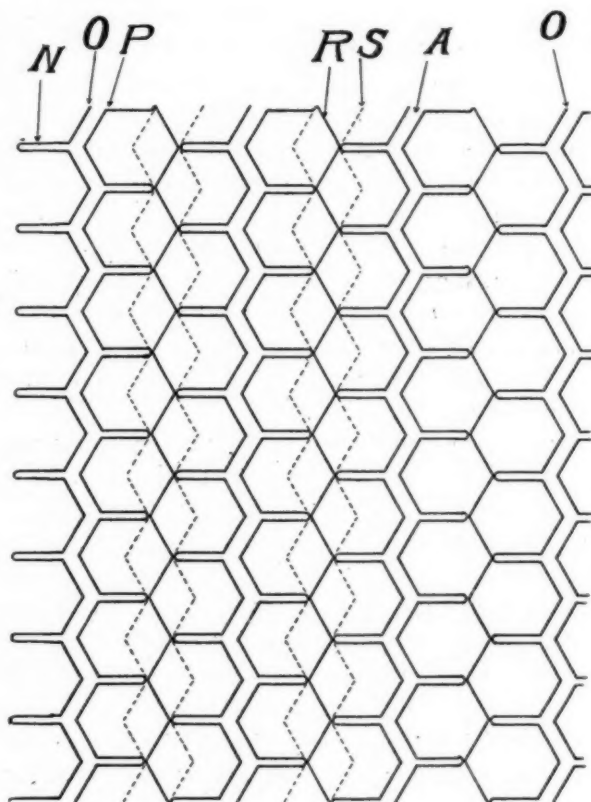


Figure 3. Showing Details of Harrison Core.

Lines O and P represent the two sides of a live water cell; the offset N is pressed together, but is here shown apart, so that you may see the formation of the water cell. R and S represent false work which acts as bracing and auxiliary cooling surface.

If you have a puncture back in the cell of one of these cores, the false work can be bent back far enough to admit of a needle point flame and wire solder, or if you are soldering with small iron, the points N can be bent out of the way.

This core is also troublesome on the edges where strips O and P are brought together, starting as a rule at the offsets N. In repairing these leaks, take a pointed awl and pry the two strips apart for as long a distance as they are unsoldered, clean the space between with muriatic acid, and solder while open; with the solder still molten, take a pair of pliers and mash edges back together as in their original position.

These leaks on the edges can at once be detected by the white lime deposit on outside, without trying out the radiator. Repairing these leaks is a very tedious job and if a very large area is affected in this way a repair will not justify the expense. In such case would advise the installation of a complete new core.

### Repairing Leak Around Studbolt.

It often happens the solder will break loose where the brass in bottom of lower tank is soldered to stud-



bolt nut. These used to give us more trouble than any other job.

You can not work between them to clean and acid will not cut the corrosion so you can sweat the solder between the nut and bottom of tank, and it makes too expensive a job to take the bottom off the radiator and unriver the nut to tin.

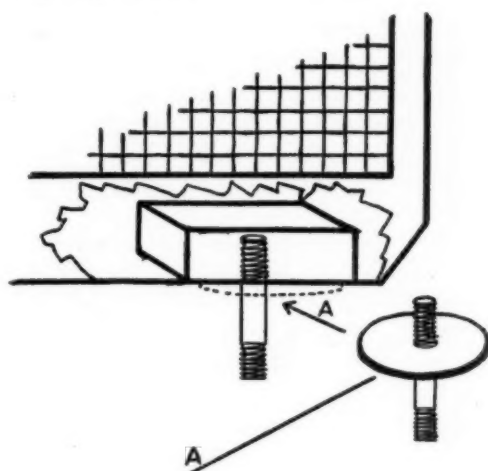


Figure 4. Repairing Leak Around Studbolt.

We have overcome this in a positive and economical way. Take out the original studbolts and have your nearest machinist turn two new ones from a solid piece of shafting 1 inch to 1¼ inch in diameter, leaving a flange or washer so when bolt is crewed into nut, flange comes tight down against the brass. Tin the surface around where studbolt goes in, also tin the washer on studbolt. Apply a good soldering flux to both surfaces and screw the studbolt down tight, use the torch to the studbolt until the solder begins to flow, then add solder and finish sweating with a good hot iron.

#### Soldering the Overflow.

First remove the tube by applying torch where soldered in tank, or tin a small portion where it enters tank and apply very hot iron.

When tube has been removed, tin one-half inch each way from where it was soldered in tank, also tin around hole in tank.

With both of these parts well tinned you are sure of a positive joint when resoldered in place.

#### Sweating On a Patch.

When vibration has caused a crack or check in either of the water tanks, these should be repaired by sweating a brass patch over same. These usually occur where the bend is made, and require an angle piece which should be at least one inch longer at each end than the length of check and one-half inch wider.

Both the patch piece and surface around check should be well tinned; the patch should be held tightly to place while very hot iron or torch is being applied and not released until solder has set.

A good liquid soldering fluid should be applied freely before and during sweating process; a real hot iron is as equally important. Lots of men fail in soldering by not using the iron hot enough.

Soft brass is your best material for patch work, as it is more porous than copper, also the alloy of zinc when a very hot iron is used makes a soldered joint almost as good as a braze. Repair piece or patch should

be a heavier gauge than tank repaired, otherwise patch will check.

NOTE: This is the second of a series of articles dealing with automobile radiator repair work. Other articles of the series will be published in forthcoming issues.

### New Product Looks Like Slate, But Is Free From Brittleness.

We have heard a lot about case-hardened steel, and now the Mar-Sla Manufacturing Company, Youngstown, Ohio, after making exhaustive tests, are offering to the building trade their latest product—case-hardened stone.

By a certain processing of free-stone they have perfected a material that is said to be absolutely acid and waterproof. Resembling slate after it is finished, it has none of the brittleness of slate and is much stronger.

It can be marketed far below the cost of slate, which in itself is no small factor.

The stone is also furnished in an enameled surface which they have called "Ivory Gloss."

A few of their products are:

Laundry Trays, Toilet Slabs, Kitchen Sinks, Restaurant Counters, Table Tops, Show Case Facings, Wainscoting, Tiling, Mantle Facings, Black Boards, Switch Boards, Laboratory Sinks, Shower Stalls, Flush Tanks, Building Tanks, Stair Treads and Linings for smelting furnaces.

### Radiator Repair Men of Grand Rapids Form Organization.

With the help and guidance of Charles Heth and Frank E. Ederle, President and Secretary, respectively, of the Michigan Sheet Metal Contractors' Association, plans were developed to organize the automobile radiator repairmen of Grand Rapids, Michigan, at a preliminary meeting held in that city.

Ten of the twelve firms doing radiator repair work in Grand Rapids were represented at the meeting. All agreed that some sort of organization should be established for the good of the business and the promotion of a friendly interchange of ideas.

An examination of the cost of conducting radiator repair business indicated an overhead of 85 per cent on productive labor.

O. D. Arnold was elected President and Victor U. Heather was chosen Secretary-treasurer.

The new Association of Radiator Repair Men is desirous of getting in touch with similar associations (if any such exist) throughout the country.

### Acquires Ownership of Tin Shop of Which He Was Manager.

The past twelve years, Gus H. Wolff has been manager of the Huron Street Tin Shop in Ypsilanti, Michigan, where he has done exceptionally good sheet metal work for some of the principal buildings of the town.

Mr. Wolff announces that he has acquired ownership of the shop and will continue the policy of high grade workmanship for which it has been noted in the past.

### **Reminds Iowa Auxiliary to Get Ready for Convention.**

The energetic secretary of the Jobbers and Salesmen's Auxiliary of the Iowa Sheet Metal Contractors' Association, C. F. Anderson, of Des Moines, Iowa, has sent a letter to all the members of his organization urging concerted and concentrated action toward building up the membership of the Iowa Sheet Metal Contractors' Association.

The purpose in mind is to get as big a percentage as possible of all the sheet metal contractors of the state into the ranks of the association in time for the convention of the sheet metal contractors which will take place at Hotel Savory, Des Moines, Iowa, May 11 and 12, 1921.

Every member belonging to the Auxiliary is urged by Secretary Anderson to be present both days of the convention and to take part in entertaining the members of the association.

Secretary Anderson declares that it is part of the duties of the Auxiliary to help obtain new members for the Iowa Sheet Metal Contractors' Association throughout the state.

With that object in view, he sends several application blanks with his letter and requests members of the Auxiliary to get at least two new applications before the convention and forward them to R. E. Pauley, Secretary, Iowa Sheet Metal Contractors' Association, Mason City, Iowa.

### **Gets New Members for Michigan Sheet Metal Contractors.**

As a result of the visits of Secretary Frank E. Ederle to several small towns, the following new members were secured for the Michigan Sheet Metal Contractors' Association: W. Ralph Alspach and E. A. Philips of Durand; G. A. Barkley of Royal Oak; and B. J. Kelly and Leo Frue of Birmingham.

In addition, Secretary Ederle took part in meetings at Owosso, April 19th, at Pontiac, April 20th, and at Flint, April 21st.

### **Notes and Queries.**

#### **Billings and Spencer Wrenches.**

From Wahler Brothers, 2553 North Halsted Street, Chicago, Illinois.

Please advise who manufactures the Billings and Spencer wrenches.

Ans.—Billings and Spencer Company, Hartford, Connecticut.

#### **Revolving Ventilators.**

From L. O. Ludwig Sheet Metal Works, 117 West Fifth Street, Michigan City, Indiana.

Will you please inform me where I may buy revolving ventilators fitted with dampers or louvers?

Ans.—Berger Brothers Company, 229 Arch Street, Philadelphia, Pennsylvania; Standard Ventilator Company, Lewisburg, Pennsylvania; Friedley-Voshardt Company, 733 South Halsted Street, Chicago, Illinois; Milwaukee Corrugating Company, Milwaukee, Wisconsin.

#### **Pruning Tool.**

From Joseph Werndl, Coffeyville, Kansas.

Can you furnish me with the names of pruning tool manufacturers?

Ans.—Cattaraugus Cutlery Company, Little Valley, New York; E. C. Atkins and Company, Indianapolis, Indiana; Henry Disston and Sons, Philadelphia, Pennsylvania; Clyde Cutlery Company, Clyde, Ohio; Cronk and Carrier Manufacturing Company, 150 Lake Street, Elmira, New York; Rhodes Manufacturing Company, Grand Rapids, Michigan; J. Wiss and Sons Company, 31 Littleton Avenue, Newark, New Jersey.

#### **Swartwout Ventilators.**

From L. O. Ludwig Sheet Metal Works, 117 West Fifth Street, Michigan City, Indiana.

Can you tell me who makes the Swartwout ventilators?

Ans.—Ohio Body and Blower Company, 9300 Detroit Avenue, Cleveland, Ohio.

#### **XXth Century Lawn Mower.**

From DeWeese Radiator and Repair Shop, 814 Barr Street, Fort Wayne, Indiana.

Please inform us who makes the XXth Century lawn mower.

Ans.—Chadborn and Coldwell Company, Newburgh, New York.

#### **Garbage Cans.**

From A. M. Farrell, care of Kelly Foundry and Machine Company, Goshen, Indiana.

Kindly give us the names of several manufacturers of garbage cans, who make them in large quantities.

Ans.—George W. Diener Manufacturing Company, 400 Monticello Avenue; Lalance and Grosjean Manufacturing Company, 1900 South Clark Street; National Enameling and Stamping Company, 346 West Kinzie Street; Whitaker Glessner Company, 2547 Arthington Street; all of Chicago, Illinois.

#### **Permanent Magnets.**

From H. E. Meyers, care of Senate Cafe, Casper, Wyoming.

Kindly furnish me with the address of three manufacturers of permanent magnets.

Ans.—Indiana Steel Products Company, 127 North Peoria Street, Chicago, Illinois; Stromberg-Carlson Telephone Manufacturing Company, Rochester, New York; Esterline Company, Indianapolis, Indiana.

#### **Stove Parts.**

From H. M. Clark, Clark Hardware Company, Windom, Minnesota.

Where can we buy the anchor plates and lids for the top of a big cook stove which will be built on an auto camping ground, also the feed doors with frames and ash doors with wrames?

Ans.—Charter Oak Stove and Range Company, St. Louis, Missouri; William F. Traub Range Company, 229 West Superior Street, Chicago, Illinois.

#### **Stove and Furnace Repairs.**

From Joseph Neubeiser and Son, Belle Plaine, Minnesota.

Can you tell me who handles stove and furnace repairs.

Ans.—The F. A. Klaine Company, Cincinnati, Ohio; Northwestern Stove Repair Company, 654 West Roosevelt Road, Chicago, Illinois; Central Stove and Furnace Repair Company, 1801 Diversey Parkway, Chicago, Illinois; National Stove Repair Company, Cincinnati, Ohio; H. E. Hessler Company, Syracuse, New York.



# Illustrations of New Patents

*Watch This Page. Keep Yourself Informed Concerning Improved Devices Which May Save Labor in Your Shop or Add Another Source of Income to Your Retail Store.*

1,369,069. Furnace. Louis J. Westness, Milwaukee, Wis. Filed Jan. 27, 1919.

1,369,095. Dishcloth Holder. Ernest D. Gardner, Maltby, Wash. Filed Oct. 8, 1920.

1,369,149. Clothesline Fastener. Edward P. Weichel, Bethlehem, Pa. Filed Feb. 12, 1919. Renewed Jan. 12, 1921.

1,369,156. Locking Screw Thread. Irving C. Woodward, Chicago, Ill., assignor to Eugene A. Woodward, Chicago, Ill. Filed Feb. 3, 1920.

1,369,178. Hacksaw Blade. Austin M. Lawrence, Montague, Mass. Filed May 20, 1919.

1,369,205. Bottle Capping Device. Homer H. Wampler, Dayton, Ohio. Filed Sept. 7, 1920.

1,369,230. Burner. John W. Ferree, Phoenix, Ariz. Filed Mar. 20, 1920.

1,369,236. Roof. Edward T. Gatrell and Charles R. Neill, Tulsa, Okla. Filed Dec. 12, 1919.

1,369,249. Steam Cooker. Frank J. Kroupa, St. Louis, Mo. Filed Apr. 14, 1920.

1,369,258. Grass Elevator and Carrier Attachment for Lawn Mowers. George J. W. Meyers, Minneapolis, Minn. Filed Dec. 31, 1919.

1,369,261. Cleaning and Scrubbing Device. William Nelson, Barrow-in-Furness, England. Filed Oct. 4, 1919.

1,369,263. Parallel Attachment for T-Squares. Stanley H. Parvin, Dayton, Ky. Filed Feb. 13, 1920. Renewed Jan. 12, 1921.

1,369,267. Clothes Drier. Patrick D. Riordan, New York, N. Y. Filed Aug. 13, 1920.

1,369,326. Picking Knife. Richard Clark Cottman, Merced, Calif., assignor of one-half to C. J. Drosch, Merced, Calif. Filed Apr. 8, 1920.

1,369,338. Refrigerator. Herbert H. Hillman, Grand Haven, Mich., assignor to Challenge Refrigerator Company, Grand Haven, Mich., a Corporation of Michigan. Filed June 6, 1919.

1,369,351. Washboiler. Thomas Allison Patterson, Uvalde, Tex. Filed June 8, 1920.

1,369,412. Drill Chuck. Gustaf A. Englund, Hartford, Conn., assignor to The Jacobs Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Nov. 2, 1920.

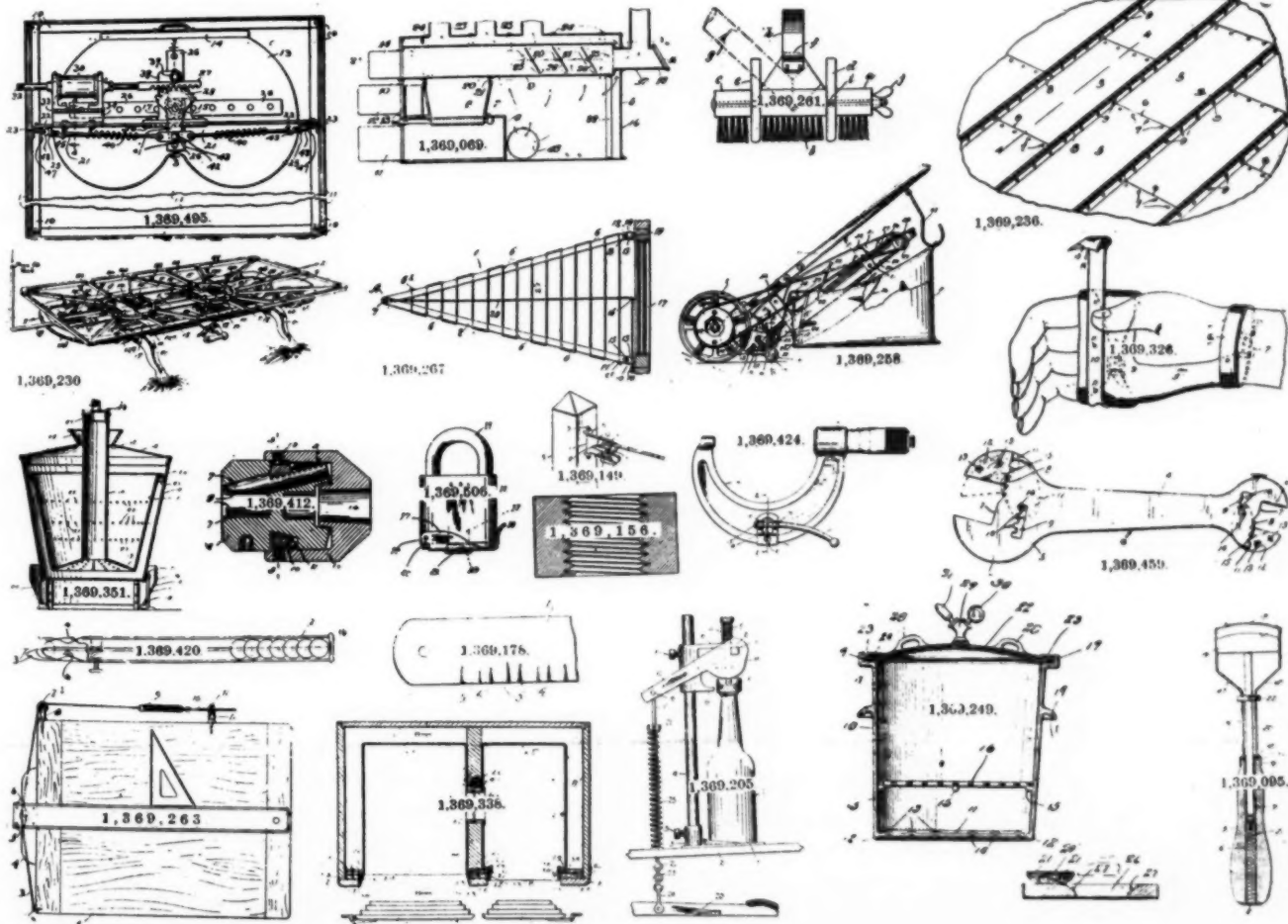
1,369,420. Thumb Tack Tool. George Gillespie and William W. Gillespie, West View, Pa. Filed Mar. 22, 1920.

1,369,424. Tool Rest or Support. Elmer S. Gross, Racine, Wis. Filed Aug. 30, 1919.

1,369,459. Wrench. Judson H. Miskimen, Glendive, Mont. Filed Feb. 2, 1920.

1,369,495. Washing Machine. Harry M. Taylor, Cleveland, Ohio. Filed Oct. 26, 1920.

1,369,506. Lock. Henry G. Voight, New Britain, Conn., assignor to Sargent & Company, New Haven, Conn., a Corporation of Connecticut. Filed Apr. 29, 1918.



# Weekly Report of the Markets

*General Conditions in the Steel Industry. Review of Prices and Tendencies in Sheet Metals, Pig Iron, etc.*

## **STEEL INDUSTRY OPERATES AT ONE-THIRD OF CAPACITY.**

The steel industry of the country at present is operating at about one-third of capacity, with the independents slightly in the lead of the corporation.

It is very doubtful, however, if the independents can maintain this operating rate for long, as it was made possible by accepting a volume of business at the low prices ruling prior to the recent advance. The independents have been booking more of the new business offered during the past week than has the corporation.

However, as the automobile business consumes only about 10 per cent of the country's output of steel, the effect is much more sentimental than real. Aside from this the iron and steel situation is unchanged.

The reduction in prices by the leading interest and the advance by the independents to meet prices on common ground has not brought out any amount of increased buying, much to the disappointment of the trade. In bars, shapes and plates there has been scarcely any buying.

There was an increased interest shown in fabricated steel last month which has not been maintained throughout the current month.

According to the Bridge Builders' & Structural Society, March orders for fabricated steel amounted to 52,100 tons, or 29 per cent of the country's fabricating shop capacity, as compared with orders amounting to 25,200, or 14 per cent of the shop capacity in February.

In spite of this increase, commitments during March were far below normal, as the average monthly contracts placed during 1920 amounted to 54 per cent of capacity.

### **Steel.**

The leading interest has completed its price revision, which now includes practically every item on its list. The most important item was that of boiler tubes and oil country goods, and the National Tube Company, its pipe subsidiary, issued new cards showing reductions in these items.

This card shows cuts of 6 points on 2 and 2½ inch tubes, 10½ points on sizes 2½ to 3 inch, and 6½ points in tubes ranging from 3½ to 13 inches.

The 1¾-inch size was unchanged. In less than carlots the discount is now 43 off against the former discount of 36½ per cent.

Oil country goods have been reduced approximately \$10 per ton on sizes 6 inches and under and \$8 for larger sizes.

Although a few mills will still book orders at prices lower than the "stabilized schedule," the finished steel products market for the most part is on a common level.

The Pittsburgh basing system of pricing steel has been restored and mills in districts other than Pitts-

burgh are now quoting the Pittsburgh prices, plus the freight rate to point of destination.

Western mills have been taking advantage of the freight differential, and consumers waged several hotly contested legal battles with the producers before the Federal Trade Commission over the abandonment of this system without avail.

Now that competition has seemingly been eliminated for the time being at least the Pittsburgh basing system has come back.

### **Copper.**

It seems quite evident that large consumers of copper have nearby requirements well covered and they are not yet disposed to place substantial contracts for third quarter shipment.

Most of the buyers who are inquiring for relatively small tonnages for filling-in contracts for early shipment are generally specifying May delivery or early June shipment.

The large interests who occasionally test the market for delivery beyond June are disposed to postpone consummation of orders until contracts for finishing material have been closed.

The trend of the market, however, is toward improvement and producers, confident of a steady strengthening of the statistical position, are not willing to make any concessions in prices.

In the export market there is a lull in buying but a few sales are being made from day-to-day for shipment to the European continent as well as to England.

Most of the recent inquiries for export to Japan have been satisfied. Against previous orders, foreign shipments of 407 tons were reported from Atlantic ports, making the total outgo thus far in April about 13,184 tons.

Sheet copper advanced ½ cent per pound, mill base in the Chicago market, making the price now ruling 20½ cents.

### **Tin.**

The sharp advance in the London tin market early this week failed to create any buying interest from American consumers, and the trading interests who were buyers last week did not continue to buy at the advance.

Consequently although there was an advance in asking prices of about 1¼ cents per pound, little if any business was done in the domestic market.

Consuming demand is still light and what little business is being transacted comes from jobbers and dealers.

So far this year imports have averaged 1,600 tons monthly, which rate is in all probability smaller than the rate of consumption.

This would argue for a lowering of the stocks held by consumers at the beginning of the year and a



strengthening of the technical position, but to what extent it is impossible to state.

It is also a moot question whether or not the tin produced from Bolivian concentrates offsets this advantage or not.

An increase of one cent per pound has occurred in the Chicago prices of tin. Pig tin advanced from 33 $\frac{3}{4}$  cents to 34 $\frac{3}{4}$  cents per pound and bar tin from 35 $\frac{3}{4}$  cents to 36 $\frac{3}{4}$  cents per pound.

### **Lead.**

Tuesday of this week, the leading interest advanced its price of lead 10 points. In St. Louis buyers withdrew their bids, but producers are still optimistic and advanced their holding price from 4.35 to 4.50 cents.

There were 500 tons of lead and 250 tons of base bullion imported from Mexico April 26th.

Another advance of \$2.50 per ton was made in lead ores in the Joplin district, which was stimulated by the limited output in conjunction with a comparatively fair demand.

American pig lead went up 30 points in the Chicago market, from \$4.65 to \$4.95 per hundred pounds and bar lead from \$5.40 to \$5.70 per hundred pounds.

### **Solder.**

No changes have taken place in Chicago prices of solder. The quotations now in effect are as follows: Waranted, 50-50, per hundred pounds, \$21.25; Commercial, 45-55, per hundred pounds, \$19.75; Plumbers', per hundred pounds, \$18.50.

### **Zinc.**

As heretofore, some producers are still not quoting. The volume of demand from consumers is not equal at present to that of last week, but is still fairly good, and the orders have been mainly for prompt shipment.

In some instances this has been due to immediate need, though the disinclination of sellers to touch futures has also helped to confine the trading to prompt. For May and June combined, 5.00 cents is bid without finding sellers.

The advance for the past ten days of about \$7 per ton has been due to steady buying by galvanizers. At each stage of the advance but little metal was offered compared to the amount asked for, and the selling was mainly confined to two or three concerns.

It is not unexpected that buying should slacken after the pace so far maintained, and consumers are less in evidence today. But there is no pressure to sell.

The zinc ore situation is very firm, and the advance last week of \$3 per ton in ore is a strengthening feature for slab zinc.

It is stated that there are in many instances contracts against the visible ore surplus, which has been reduced by recent sales.

In the Chicago market an advance of 25 points has occurred in the price of slab zinc, the quotation now being \$5.50 per hundred pounds.

### **Sheets.**

In the Mahoning Valley there are now 46 out of 105 mills under power, and mills in the Chicago and Ohio districts have booked in the aggregate about 8,000 tons of sheets from Japanese interests for early shipment.

In the Youngstown district, sheet mills are operating at about 30 per cent of capacity, but the leading sheet maker plans to put some 10 or 12 more units to rolling at once, which will raise the operating rate to 40 per cent.

All of the sheet mills at the Beechbottom plant of the Whitaker-Glessner Company have resumed after an idleness extending over two months and the Wheeling Steel & Iron Company has put 6 more hot mills under power at the Yorkville plant. This company has been operating only 6 mills.

Reports are that the independent sheet mills booked quite a tonnage of business at the prices they had been quoting prior to the leading interest's reduction of prices.

Some of the quotations out were very considerably below the new prices, and were farther below the open prices being named for carloads than was commonly supposed, so that it is not surprising that a considerable volume of business was booked when buyers learned that the prices were to be withdrawn.

### **Tin Plate.**

Dullness continues to characterize the tin-plate market. If the recent price revision, putting the whole market on a basis of \$6.25, has had any effect, the effect is scarcely discernible.

Certainly nothing like the tonnage has been released by the reduction that would have been expected to come as a result of the action taken by the mills.

An improved demand is expected later but so much time has already elapsed that it is clear this tin plate season will be a very poor one.

### **Old Metals.**

Wholesale quotations in the Chicago district which should be considered as nominal are as follows: Old steel axles, \$14.00 to \$14.50; old iron axles, \$24.00 to \$25.00; steel springs, \$12.00 to \$12.50; No. 1 wrought iron, \$10.50 to \$11.00; No. 1 cash, \$14.00 to \$14.50; all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 7 cents; light brass, 4 cents; lead, 3 cents; zinc, 2 cents; cast aluminum, 10 cents.

### **Pig Iron.**

One interest states that the production of pig iron remains about stationary, for while a few furnaces are being relighted those going out will offset this increase.

However, with the present low stocks and production, any appreciable increase in demand will be felt almost immediately.

The sentiment in the East has improved and prices have been strengthened somewhat.

One jobbing foundry in Connecticut has come back into the market and is running six days a week, while one in the Hudson River district reports an operation of six days a week and that it is melting more iron than it did a year ago.

There is no great deal of open inquiry, but considerable quiet buying is going on involving respectable tonnages. One pipe company closed for 6,000 tons and other lots of 1,000 to 2,000 tons for shipment all the way from May to August were placed in this manner.

# Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS		HARDWARE		Scratch.		BEVELS, TEE.	
<b>FIG IRON.</b>		<b>ADZES.</b>		No. 18, socket Handled .....per doz. \$ 2 50		Stanley's Rosewood handle, new list .....Nets	
Northern Fdy. No. 2.....\$24 70		Carpenters'.		No. 344 Goodell- Pratt, list less.....35-40%		Stanley iron handle.....Nets	
Southern Fdy. No. 2.....29 67		Plumbs.....Per doz. \$29 00		No. 7 Stanley...per doz. \$ 2 25		<b>BINDING CLOTH.</b>	
Lake Sup. Charcoal.....38 50		Coopers'.		<b>AXES.</b>		Zincd .....55%	
Malleable .....24 70		Barton's .....Net		First Quality, Single		Brass .....40%	
<b>FIRST QUALITY BRIGHT</b>		White's .....Net		Bitted .....per doz. 16 50		Brass, plated.....60%	
<b>TIN PLATES.</b>		Railroad.		First Quality Double		<b>BITS.</b>	
Per Box.		Plumbs.....Per doz. \$30 00		Bitted .....per doz. 22 50		Auger.	
IC 14x20 112 sheets \$12 60		<b>AMMUNITION.</b>		Broad.		Jennings Pattern.....Net	
IX 14x20.....14 55		Shells, Loaded, Peters.		Plumbs. Can. Pat., 6-lb. 65 00		Ford Car.....List plus 5%	
IXX 14x20.....15 70		Loaded with Black Powder, 18%		Single Bitted (without handles).		Ford's Ship....." 5%	
IXXX 14x20.....16 90		Loaded with Smokeless		Plumbs, 4 1/2-lb.....19 50		Irwin .....35%	
IXXXX 14x20.....18 10		Powder .....18%		Double Bitted (without handles).		Russell Jennings.....plus 20%	
IC 20x28.....25 20		Winchester.		Plumbs, 4 1/2-lb.....23 50		Clark's Expansive.....33 1/2%	
IX 20x28.....29 10		Smokeless Repeater Grade, 15%		<b>BAGS, PAPER, NAIL.</b>		Steer's " Small list, \$22 00..5%	
IXX 20x28.....31 40		Smokeless Leader Grade...15%		Pounds .. 10 16 20 25		" " Large " \$26 00..5%	
IXXX 20x28.....33 80		Black Powder.....15%		Per 1000..\$5 00 6 50 7 50 9 00		Irwin Car.....35%	
IXXXX 20x28.....36 20		U. M. C.		<b>BALANCES, SPRING.</b>		Ford's Ship Auger pattern	
<b>COKE PLATES</b>		Nitro Club.....18%		Sight Spring.....Net		Car .....List plus 5%	
Cokes, 180 lbs.... 20x28 \$14 80		Arrow .....18%		Straight .....Net		Center .....10%	
Cokes, 200 lbs.... 20x28 15 00		New Club .....18%		<b>BARS, WRECKING.</b>		Countersink.	
Cokes, 214 lbs.... IC 20x28 15 35		Gun Wads—per 1000.		V. & B. No. 12.....\$0 45		No. 18 Wheeler's..per doz. \$2 25	
Cokes, 270 lbs.... IX 20x28 17 50		Winchester 7-8 gauge 10&7 1/2%		V. & B. No. 24.....0 75		No. 20 " " " 2 00	
<b>BLUE ANNEALED SHEETS.</b>		" 9-10 gauge 10&7 1/2%		V. & B. No. 324.....0 80		American Snailhead " 1 75	
Base.....per 100 lbs. \$4 13		" 11-28 gauge 10&7 1/2%		V. & B. No. 30.....0 85		" Rose " " 2 00	
<b>ONE PASS COLD ROLLED</b>		<b>Powder.</b>		V. & B. No. 330.....0 90		" Flat " " 1 40	
<b>BLACK.</b>		Each		<b>BASKETS.</b>		Mahew's Flat " " 1 80	
No. 18-20.....per 100 lbs. \$5 20		DuPont's Sporting, kegs..\$11 25		Clothes.		" Snail " " 1 90	
No. 22-24.....per 100 lbs. 5 25		" 1/4 kegs 3 10		Small Willow...per doz. \$15 00		Dowel.	
No. 26.....per 100 lbs. 5 30		DuPont's Canisters, 1-lb.. 50		Medium Willow. " 17 00		Russel Jennings.....plus 20%	
No. 27.....per 100 lbs. 5 35		" kegs.. 22 00		Large Willow... " 20 00		Gimlet.	
No. 28.....per 100 lbs. 5 40		" 1/4 kegs 5 75		Galvanized. 1 bu. 1 1/2 bu.		Standard Double Cut Gross \$8 40	
No. 29.....per 100 lbs. 5 50		" canisters 1 00		Per doz.....\$16 08 \$18 72		Nail Metal Single	
<b>GALVANIZED.</b>		Hercules "E.C." kegs.....22 50		<b>BEATERS.</b>		Cut .....Gross \$4 00—\$5 00	
No. 16.....per 100 lbs. \$5 65		Hercules "Infallible," 25-can		Carpet. Per doz.		Reamer.	
No. 18-20.....per 100 lbs. 5 80		drums lbs. 5 25		No. 7 Tinned Spring Wire..\$1 10		Standard Square.....Dox. \$2 50	
No. 22-24.....per 100 lbs. 5 95		Hercules "Infallible," 10-can		No. 8 Spring Wire Cop-		American Octagon... " 2 50	
No. 26.....per 100 lbs. 6 10		drums lbs. 5 40		pered .....1 50		Screw Driver.	
No. 27.....per 100 lbs. 6 25		Hercules "Infallible," 10-can		No. 9 Preston.....1 75		No. 1 Common.....20	
No. 28.....per 100 lbs. 6 40		drums lbs. 5 50		<b>Egg.</b>		No. 25 Stanley.....75	
No. 30.....per 100 lbs. 6 90		Hercules "E.C." and "Infal-		No. 50 Imp. Dover.....\$1 10		<b>BLADES, SAW.</b>	
<b>BAR SOLDER.</b>		libile," canisters.....1 00		No. 102 " " Tinned 1 35		Wood.	
Warranted,		Hercules W. A. 30 Cal. Rifle,		No. 150 " " hotel 2 10		Diston 30-in.	
50-50.....per 100 lbs. \$21 25		canisters .....1 25		No. 10 Heavy hotel tinned 2 10		Nos. ....6 66 26	
Commercial,		Hercules Sharpshooter Rifle,		No. 13 " " " 3 30		\$3 45 \$10 05 \$3 45	
45-55.....per 100 lbs. 19 75		canisters .....1 25		No. 15 " " " 3 60		<b>BLOCKS.</b>	
Plumbers'.....per 100 lbs. 18 50		Hercules Bullseye Revolver,		No. 18 " " " 4 50		Wooden .....20%	
<b>ZINC.</b>		canisters .....1 00		<b>Hand.</b>		Patent .....20%	
In Slabs .....\$5 50		<b>ANVILS.</b>		8 9 10 12		<b>BOARDS.</b>	
<b>SHEET ZINC.</b>		Solid Wrought...23 & 23 1/2c per lb.		Per doz.\$11 50 13 00 14 75 18 00		Per doz.	
Cask lots.....13c		<b>ASBESTOS.</b>		<b>Moulders'.</b>		24x24 .....\$18 65	
Less than cask lots.....13 1/4-13 1/2c		Paper up to 1/16.....10c per lb.		12-Inch .....Per doz. 20 00		26x26 .....16 05	
<b>COPPER.</b>		Millboard 3/32 to 1/4...10 1/2c per lb.		<b>BELLS.</b>		28x28 .....18 85	
Copper Sheet, mill base...\$0 20 1/2		Corrugated Paper (250		Call.		30x30 .....21 30	
<b>LEAD.</b>		sq. ft.).....\$6.50 per 100 lbs.		3-Inch Nickeled Rotary Bell,		33x33 .....25 50	
American Pig .....\$4 95		Rollboard .....11c per lb.		Bronzed base...per doz. \$5 50		36x36 .....20 50	
Bar .....5 70		<b>AUGERS.</b>		Cow.		Wash.	
Sheet.		Boring Machine.....40 @ 40&10%		Kentucky .....30%		No. 760, Banner Globe	
Full coils.....per 100 lbs. \$7 75		Carpenter's Nut.....50%		Door. Per doz.		(single) .....per doz. \$5 25	
Cut coils.....per 100 lbs. 8 00		Hollow.		New Departure Automatic \$7 50		No. 652, Banner Globe	
<b>TIN.</b>		Bonney's.....per doz. \$30 00		Rotary.		(single) .....per doz. 8 75	
Pig tin.....34 1/2c		Post Hole.		3 -in. Old Copper Bell... 6 00		No. 801, Brass King, per doz. 8 25	
Bar tin.....36 1/2c		Iwan's Post Hole and Well...30%		3 -in. Old Copper Bell,		No. 860, Single—Plain	
		Vaughan's, 4 to 9 in.		fancy .....8 00		Pump .....8 25	
		.....per doz. \$14 00		3 -in. Nickeled Steel Bell 6 00		<b>BOLTS.</b>	
		Ship.		3 1/2-in. Nickeled Steel Bell 6 50		Carriage, Machine, etc.	
		Ford's .....Net		<b>Hand.</b>		Carriage, cut thread, 1/4x6	
		<b>AWLS.</b>		Hand Bell polished List plus 15%		and sizes smaller and	
		No. 3 Handled...per doz. \$0 65		White Metal....." 15%		shorter .....50 & 5%	
		No. 1050 Handled " 1 40		Nickel Plated....." 5%		Carriage sizes larger and	
		Patent asst'd, 1 to 4 " 85		Swiss ....." 10%		longer than 1/4x6.....50%	
		<b>Harness.</b>		<b>Miscellaneous.</b>		Machine, 1/4x4 and sizes	
		Common .....1 05		Church and School, steel		smaller and shorter.....60%	
		Patent .....1 00		alloys .....30%		Machine, sizes larger and	
		<b>Peg.</b>		Farm, lbs.. 40 50 75 100		longer than 1/4x4.....50 & 10%	
		Shouldered .....1 60		Each ....\$3 00 3 75 5 50 7 25		Stove .....70%	
		Patented .....75				Tire .....50 & 10%	
						<b>Mortise, Door.</b>	
						Gem, iron.....5%	
						Gem, bronze plated.....5%	